

# STAR

## TEST REQUEST FORM

Sample/Specimen No. 0-008 Cost Code/Work Order No. ED332

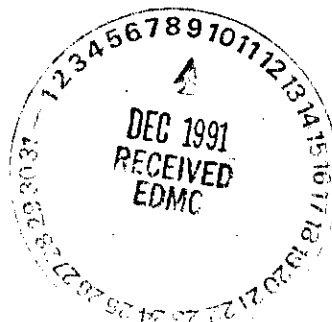
Requested By: Org. 80232 Person J. LINDBERG Date 1-22-90

Test Requested	No. of Samples	Test Lab Information (Instruction Used)
<u>SIEVE ANALYSIS</u>	<u>1</u>	<u>ETAL-07</u>
<u>HYDROMETER</u>	<u>1</u>	<u>ETAL-07 (IF REQ)</u>
<u>MOISTURE</u>	<u>1</u>	<u>ETAL-14</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Remarks FIELD SAMPLE  
MW-14-1

Received By: R.G. ALEXANDER Date 1-9-90

Approved By: R.G. ALEXANDER Date 1-22-90



# SIEVE ANALYSIS DATA SHEET

Sample ID 0-008

Page 1 of 1

Tested By RG ALEXANDER

Date 1-22-90

Procedure BTAL-07

Rev. 1

Date Issued 11-15-89

EQUIPMENT ITEM

CALIBRATION NO.

DATE DUE

Balance

3304

3-26-90

Thermometer

0006

2-6-90

N/A

N/A

N/A

Sample Description SANDY GRAVEL

Sieve Time 10 (min)

reduced by ☒ splitting

☐ quartering

☐ stockpile

(B)

(A)

BEFORE TEST WT. N/A AFTER TEST WT. N/A  $\frac{B-A}{B} \times 100 = \underline{N/A} \% \text{ LOSS}$

Sieve ID Number	Sieve Size	Sample Weight	Cumulative Wt. Retained (g)	% Retained	Cumulative % Retained	Cumulative % Pass	% Pass
<u>N/A</u>	<u>2</u>	<u>3814.37</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>100</u>	<u>100</u>
	<u>1 1/2</u>		<u>0</u>	<u>0</u>	<u>0</u>	<u>100</u>	<u>100</u>
	<u>1</u>		<u>386.90</u>	<u>10.1</u>	<u>10.1</u>	<u>89.9</u>	<u>89.9</u>
	<u>3/4</u>		<u>637.64</u>	<u>16.7</u>	<u>16.7</u>	<u>83.3</u>	<u>83.3</u>
	<u>1/2</u>		<u>1022.42</u>	<u>26.8</u>	<u>26.8</u>	<u>73.2</u>	<u>73.2</u>
	<u>3/8</u>		<u>1304.47</u>	<u>34.2</u>	<u>34.2</u>	<u>65.8</u>	<u>65.8</u>
	<u>#4</u>	<u>↓</u>	<u>1724.70</u>	<u>45.2</u>	<u>45.2</u>	<u>54.8</u>	<u>54.8</u>
	<u>#10</u>	<u>3814.37</u>	<u>2037.36</u>	<u>53.4</u>	<u>53.4</u>	<u>46.4</u>	<u>46.4</u>
	<u>#40</u>	<u>120.65</u>	<u>41.10</u>	<u>34.1</u>	<u>34.1</u>	<u>65.9</u>	<u>30.7</u>
	<u>#60</u>		<u>63.87</u>	<u>53.0</u>	<u>53.0</u>	<u>47.0</u>	<u>21.9</u>
	<u>#100</u>		<u>83.74</u>	<u>69.5</u>	<u>69.5</u>	<u>30.5</u>	<u>14.2</u>
<u>↓</u>	<u>#200</u>	<u>↓</u>	<u>98.21</u>	<u>81.5</u>	<u>81.5</u>	<u>18.5</u>	<u>8.6</u>

Finess Modules (FM) N/A (See ASTM C 136-83, Section 8.2)

## MATERIALS FINER THAN NO. 200 SIEVE BY WASHING

C=Percentage of Material Passing a 200 Sieve 18.5 %

D=Original Dry Weight of Sample 420.65g

E=Dry Weight of Sample After Washing/Sieve 98.21g

$$C = \frac{(D-E)}{D} \times 100$$

Remarks

WASH FINE GRADING  
FIELD SAMPLE  
SMALL.

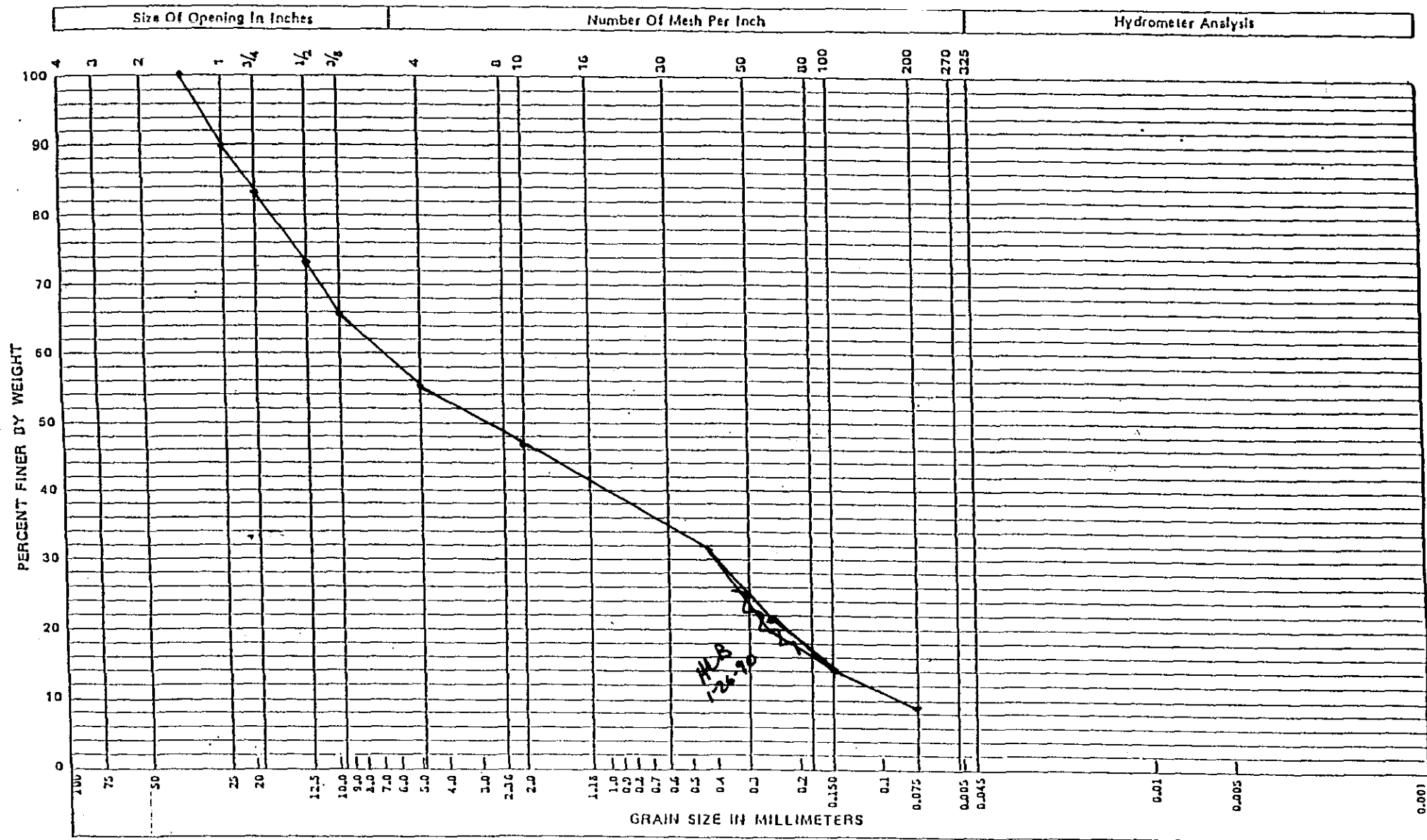
ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS TRAINED AND USED CALIBRATED INSTRUMENTS

Checked By HCBenny

Date 1-26-90

9 2 1 2 1 1 0 3 3 6

## GRAIN SIZE ANALYSIS PLOT

Specimen No. 0-008Procedure No. ETM-07Rev. 1Date Issued 11-15-89

Sample Description:

SANDY GRAVEL  
MW-14-1

Plotted by:

R.G. Alexander

Date:

1-22-90

Checked by:

HCBenny

Date:

1-26-90

SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL-14 REV. NO. 0

THERMOMETER NO. 0006 CALIBRATION DUE DATE 2-6-90

REV. NO. 4

CALIBRATION DUE DATE 2-6-90

[illegible]

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

DATE 1-22-90



Westinghouse  
Hanford Company

# CHAIN OF CUSTODY

Company Contact: Jon Lindberg Telephone: 6-5005

Sample Collected by: K.M. Singleton Date: 12-29-89 Time: NA

Sample Locations: Horn Rapids Land Fill, MW-13<sup>14</sup>

Ice Chest No.: NA Field Logbook Page No.: \_\_\_\_\_

Remarks: \_\_\_\_\_

Method of Shipment: Truck/Car to 2101M

## Sample Identification

<sup>14</sup> MW-13-1, 7.6'-8.6', ~ 7 lb plastic bag  
(Grain size, & moisture test)  
<sup>14</sup> Hydrometer

<sup>14</sup> MW-13-2, 10.8'-11.5', ~ 7 lb plastic bag  
(Grain size, & moisture)  
<sup>14</sup> Hydrometer

REMARK SAMPLE NO. AS PER TELEPHONE CONVERSATION WITH J. LINDBERG

ON 1-15-90 R.G. Alexander 1-15-90  
R.G. ALEXANDER

## CHAIN OF POSSESSION

Relinquished by:	Received by:	Date/Time:
<u>K.M. Singleton</u>	<u>R.G. Alexander</u>	<u>1-9-90 0630</u>
Relinquished by:	Received by:	Date/Time:

Relinquished by:	Received by:	Date/Time:
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Relinquished by:	Received by:	Date/Time:
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Westinghouse  
Hanford Company

### SAMPLE ANALYSIS REQUEST

#### PART I: FIELD SECTION

Collector: K.M. Singleton Date Sampled: 12-29-89 Time: 11A hours

Company Contact Jon Lindberg Telephone ( ) 6-5005

SAMPLE NUMBER	NUMBER & TYPE OF SAMPLE CONTAINERS	TYPE OF SAMPLE *	ANALYSIS REQUESTED
<u>MW13-1</u>	<u>1 plastic bag</u>	<u>soil</u>	<u>Moisture/Sieve/Hydrometer</u>
<u>MW13-2</u>	<u>1 plastic bag</u>	<u>soil</u>	<u>Moisture/Sieve/Hydrometer</u>

Field Information \*\*

Special Handling and/or Storage

#### PART II: LABORATORY SECTION

Received by \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

Analysis Required \_\_\_\_\_

\* Indicate Whether Sample is Soil, Sludge, Water, Etc.

\*\* Use Back of Page for Additional Information Relative to Sample Location.

92120539

# RADIATION RELEASE

Bldg. How Reports Date 12-29-89  
 Released By [Signature]  
 Operational Health Physics  
 Remarks NW-14-1  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. How Reports Date 12-29-89  
 Released By [Signature]  
 Operational Health Physics  
 Remarks 14-2  
NW 13-2  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. NW-13-3 Date 1-2-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks NW-14-13  
1 sample  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. NW-13-4 Date 1-2-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks 1 sample  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. NW-13-5 Date 1-3-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks \_\_\_\_\_  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. NW-13-6 Date 1-3-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks NW-14-5  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. WM-14-7 Date 1-4-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks \_\_\_\_\_  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. WM-14-8 Date 1-4-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks \_\_\_\_\_  
 54-3000-022 (09/88)

9212112190

# TEST REQUEST FORM

Sample/Specimen No. 0-009 Cost Code/Work Order No. ED 332

Requested By: Org. 80232 Person J. LINDBERG Date 1-22-90

Test Requested	No. of Samples	Test Lab Information (Instruction Used)
<u>SIEVE ANALYSIS</u>	<u>1</u>	<u>ETAL-07</u>
<u>HYDROMETER</u>	<u>1</u>	<u>ETAL-07 (IF REQ.)</u>
<u>MOISTURE</u>	<u>1</u>	<u>ETAL-14</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Remarks FIELD SAMPLE  
MW-14-2

Received By: R.G. ALEXANDER Date 1-9-90

Approved By: R.G. ALEXANDER Date 1-22-90

921210091

# SIEVE ANALYSIS DATA SHEET

Sample ID 0-009

Page 1 of 1

Tested By R.G ALEXANDER

Date 1-22-90

Procedure ETAL-07

Rev 1

Date Issued 11-15-90

EQUIPMENT ITEM

CALIBRATION NO.

DATE DUE

Balance

3804

3-25-90

Thermometer

0006

2-6-90

N/A

N/A

N/A

Sample Description SANDY GRAVEL

Sieve Time 10 (min)

reduced by



splitting



quartering



stockpile

(B)

(A)

BEFORE TEST WT. N/A AFTER TEST WT. N/A  $\frac{B-A}{B} \times 100 = \frac{N/A}{N/A} \times 100 = \frac{N/A}{N/A} \% \text{ LOSS}$

Sieve ID Number	Sieve Size	Sample Weight	Cumulative Wt. Retained (g)	% Retained	Cumulative % Retained	Cumulative % Pass	% Pass
<u>N/A</u>	<u>2</u>	<u>3549.68</u>	<u>Ø</u>	<u>Ø</u>	<u>Ø</u>	<u>100</u>	<u>100</u>
	<u>1 1/2</u>		<u>Ø</u>	<u>Ø</u>	<u>Ø</u>	<u>100</u>	<u>100</u>
	<u>1</u>		<u>316.32</u>	<u>8.9</u>	<u>8.9</u>	<u>91.1</u>	<u>91.1</u>
	<u>3/4</u>		<u>471.72</u>	<u>13.3</u>	<u>13.3</u>	<u>86.7</u>	<u>86.7</u>
	<u>1/2</u>		<u>672.00</u>	<u>18.9</u>	<u>18.9</u>	<u>81.1</u>	<u>81.1</u>
	<u>3/8</u>		<u>895.20</u>	<u>25.2</u>	<u>25.2</u>	<u>74.8</u>	<u>74.8</u>
	<u>#4</u>		<u>1334.70</u>	<u>37.6</u>	<u>37.6</u>	<u>62.4</u>	<u>62.4</u>
	<u>#10</u>	<u>3549.68</u>	<u>1775.96</u>	<u>50.0</u>	<u>50.0</u>	<u>50.0</u>	<u>50.0</u>
	<u>#40</u>	<u>115.84</u>	<u>65.94</u>	<u>56.9</u>	<u>56.9</u>	<u>43.1</u>	<u>21.6</u>
	<u>#60</u>		<u>82.48</u>	<u>71.2</u>	<u>71.2</u>	<u>28.8</u>	<u>14.4</u>
	<u>#100</u>		<u>91.12</u>	<u>78.7</u>	<u>78.7</u>	<u>21.3</u>	<u>10.7</u>
	<u>#200</u>		<u>98.97</u>	<u>85.4</u>	<u>85.4</u>	<u>14.6</u>	<u>7.3</u>

Finess Modules (FM) N/A (See ASTM C 136-83, Section 8.2)

MATERIALS FINER THAN NO. 200 SIEVE BY WASHING

C=Percentage of Material Passing a 200 Sieve 14.6 %

D=Original Dry Weight of Sample

115.84g

E=Dry Weight of Sample After Washing/Sieve 98.97g

$C = \frac{(D-E)}{D} \times 100$

Remarks

WASH GRAVING  
SMALL FIELD  
SAMPLE

ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS TRAINED AND USED CALIBRATED INSTRUMENTS

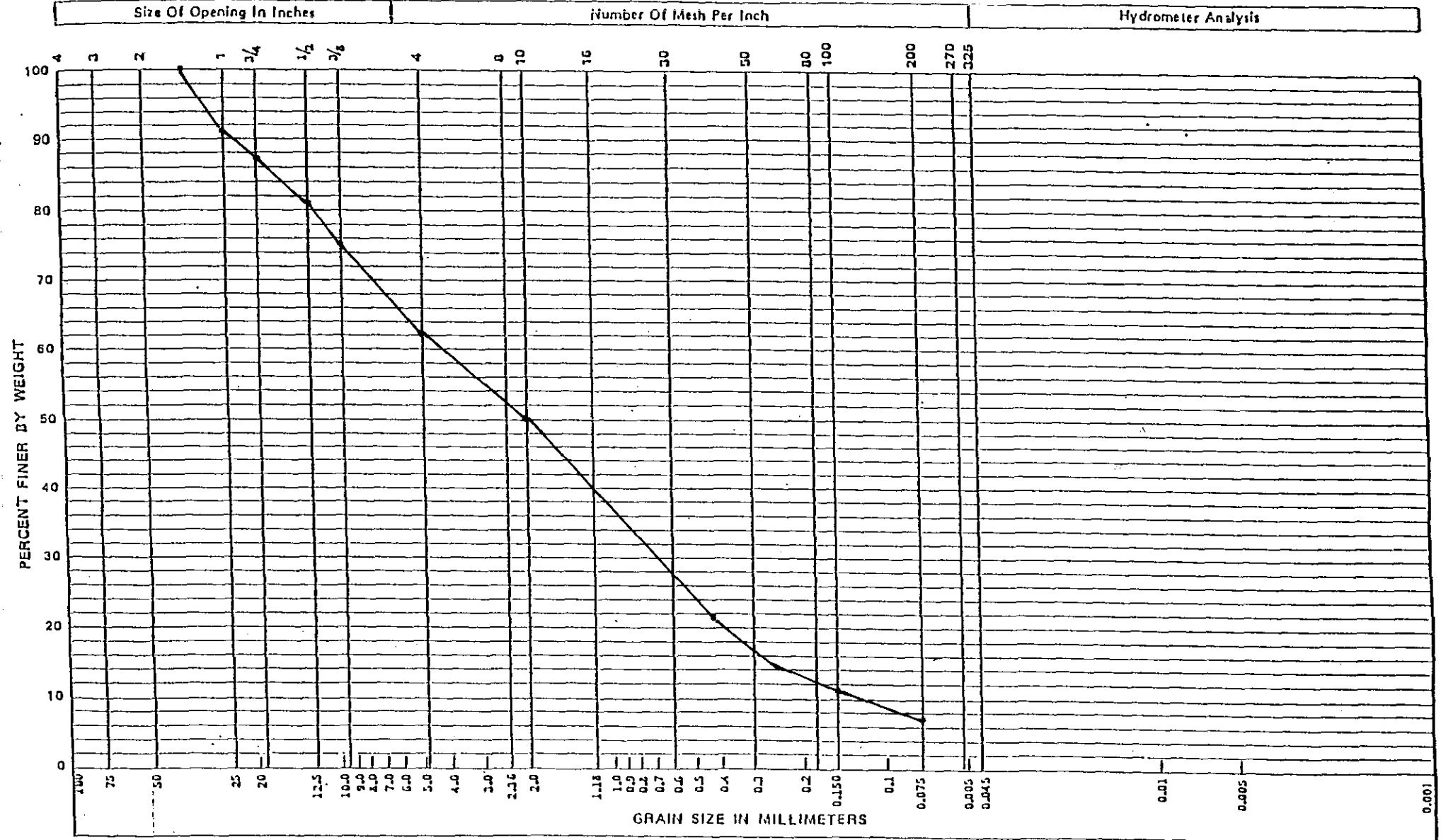
Checked By H/L Benny

Date 1-26-90

9212110022

9 2 1 2 1 1 0 5 9 3

## GRAIN SIZE ANALYSIS PLOT

Specimen No. 0-009Procedure No. ETAL-07Rev. 1Date Issued 11-15-89

Sample Description:

SANDY GRAVEL  
MW-14-2Plotted by: R.G. ALEXANDERDate: 1-22-90Checked by: HL BennyDate: 1-26-90

# SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL-14

REV. NO. ØTHERMOMETER NO. 0006

CALIBRATION DUE DATE 2-6-90

[illegible]

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

TEST OPERATOR: R.G. ALEXANDER

DATE /-22-90

922-694



## CHAIN OF CUSTODY

Company Contact: Jon Lindberg Telephone: 6-5005Sample Collected by: B.M. Singleton Date: 12-29-89 Time: NASample Locations: Horn Rapids Land Fill, MW-13<sup>14</sup>Ice Chest No.: NA Field Logbook Page No.: \_\_\_\_\_

Remarks: \_\_\_\_\_

Method of Shipment: Truck/Car to 2101M

## Sample Identification

<sup>14</sup> MW-13-1, 7.6'-8.6', ~ 7 lb plastic bag  
(Grain size, & moisture test)<sup>14</sup> Hydrometer<sup>14</sup> MW-13-2, 10.8'-11.5', ~ 7 lb plastic bag

(Grain size, &amp; moisture)

Hydrometer

REMARK SAMPLE NO. AS PER TELEPHONE CONVERSATION WITH J. LINDBERG

ON 1-15-90 R.G. Alexander 1-15-90  
R.G. Alexander

## CHAIN OF POSSESSION

Relinquished by:

B.M. Singleton

Relinquished by:

Received by:

R.G. AlexanderReceived by: R.G. Alexander

Date/Time:

1-9-90 0630

Date/Time:

Relinquished by:

Received by:

Date/Time:

Relinquished by:

Received by:

Date/Time:



Westinghouse  
Hanford Company

### SAMPLE ANALYSIS REQUEST

#### PART I: FIELD SECTION

Collector: K.M. Singleton Date Sampled: 12-29-89 Time: NA hours

Company Contact Jon Lindberg Telephone ( ) 6-5005

SAMPLE NUMBER	NUMBER & TYPE OF SAMPLE CONTAINERS	TYPE OF SAMPLE *	ANALYSIS REQUESTED
<u>MW3-1</u>	<u>1 plastic bag</u>	<u>soil</u>	<u>Moisture/Sieve/Hydrometer</u>
<u>MW3-2</u>	<u>1 plastic bag</u>	<u>soil</u>	<u>Moisture/Sieve/Hydrometer</u>

Field Information \*\*

Special Handling and/or Storage

#### PART II: LABORATORY SECTION

Received by \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

Analysis Required \_\_\_\_\_

\* Indicate Whether Sample Is Soil, Sludge, Water, Etc.

\*\* Use Back of Page for Additional Information Relative to Sample Location.

9212110196

# RADIATION RELEASE

Bldg. How Reports Date 12-29-89  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-1  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. How Reports Date 12-29-89  
 Released By [Signature]  
 Operational Health Physics  
 Remarks 14-2  
MW 13-2  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-13-3 Date 1-2-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-3  
1 Sample  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-13-4 Date 1-2-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks 1 Sample  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-13-5 Date 1-3-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks \_\_\_\_\_  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-13-6 Date 1-3-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-5  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. WM-14-7 Date 1-4-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks \_\_\_\_\_  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. WM-14-8 Date 1-4-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks \_\_\_\_\_  
 54-3000-022 (09/88)

92126

# TEST REQUEST FORM

Sample/Specimen No. D-010 Cost Code/Work Order No. ED 332

Requested By: Org. 80232 Person J. Lindberg Date 1-22-90

Test Requested	No. of Samples	Test Lab Information (Instruction Used)
<u>Sieve Analysis</u>	<u>1</u>	<u>ETAL - 07</u>
<u>Hydrometer</u>	<u>1</u>	<u>ETAL - 07 (IF REQ)</u>
<u>Moisture</u>	<u>1</u>	<u>ETAL - 14</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Remarks Field Sample  
MW - 14-3

Received By: RG Alexander Date 1-9-90

Approved By: RG Alexander Date 1-22-90

921211798

# SIEVE ANALYSIS DATA SHEET

Sample ID 0-010

Page 1 of 1

Tested By R.G. Alexander

Date 1-22-90

Procedure ETAL-07

Rev 1

Date Issued 11-15-90

EQUIPMENT ITEM

CALIBRATION NO.

DATE DUE

Balance

3304

3-25-90

Thermometer

0006

2-6-90

N/A

N/A

N/A

Sample Description SANDY GRAVEL

Sieve Time 10 (min)

reduced by ☒ splitting

☐ quartering

☐ stockpile

(B)

(A)

BEFORE TEST WT N/A

AFTER TEST WT N/A

$\frac{B-A}{B} \times 100 = \text{N/A} \% \text{ LOSS}$

Sieve ID Number	Sieve Size	Sample Weight	Cumulative Wt. Retained (g)	% Retained	Cumulative % Retained	Cumulative % Pass	% Pass
<u>N/A</u>	<u>2</u>	<u>3463.50</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>100</u>	<u>100</u>
	<u>1 1/2</u>		<u>338.51</u>	<u>9.8</u>	<u>9.8</u>	<u>90.2</u>	<u>90.2</u>
	<u>1</u>		<u>1031.61</u>	<u>29.8</u>	<u>29.8</u>	<u>70.2</u>	<u>70.2</u>
	<u>3/4</u>		<u>1439.04</u>	<u>41.5</u>	<u>41.5</u>	<u>58.5</u>	<u>58.5</u>
	<u>1/2</u>		<u>1826.93</u>	<u>52.7</u>	<u>52.7</u>	<u>47.3</u>	<u>47.3</u>
	<u>3/8</u>		<u>2127.51</u>	<u>61.4</u>	<u>61.4</u>	<u>38.6</u>	<u>38.6</u>
	<u>#4</u>		<u>2513.94</u>	<u>72.6</u>	<u>72.6</u>	<u>27.4</u>	<u>27.4</u>
	<u>#10</u>	<u>3463.50</u>	<u>2872.31</u>	<u>82.9</u>	<u>82.9</u>	<u>17.1</u>	<u>17.1</u>
	<u>#40</u>	<u>107.81</u>	<u>55.58</u>	<u>51.6</u>	<u>51.6</u>	<u>48.4</u>	<u>8.3</u>
	<u>#60</u>		<u>71.65</u>	<u>66.5</u>	<u>66.5</u>	<u>33.5</u>	<u>5.7</u>
	<u>#100</u>		<u>82.75</u>	<u>76.8</u>	<u>76.8</u>	<u>23.2</u>	<u>4.0</u>
	<u>#200</u>		<u>91.92</u>	<u>85.3</u>	<u>85.3</u>	<u>14.7</u>	<u>2.5</u>

Finess Modules (FM) \_\_\_\_\_ (See ASTM C 136-83, Section 8.2)

MATERIALS FINER THAN NO. 200 SIEVE BY WASHING

C=Percentage of Material Passing a 200 Sieve 14.7 %

D=Original Dry Weight of Sample 107.81g

E=Dry Weight of Sample After Washing/Sieve 91.92g

$C = \frac{(D-E)}{D} \times 100$

Remarks

Wash GRADING  
Small Field  
SAMPLE

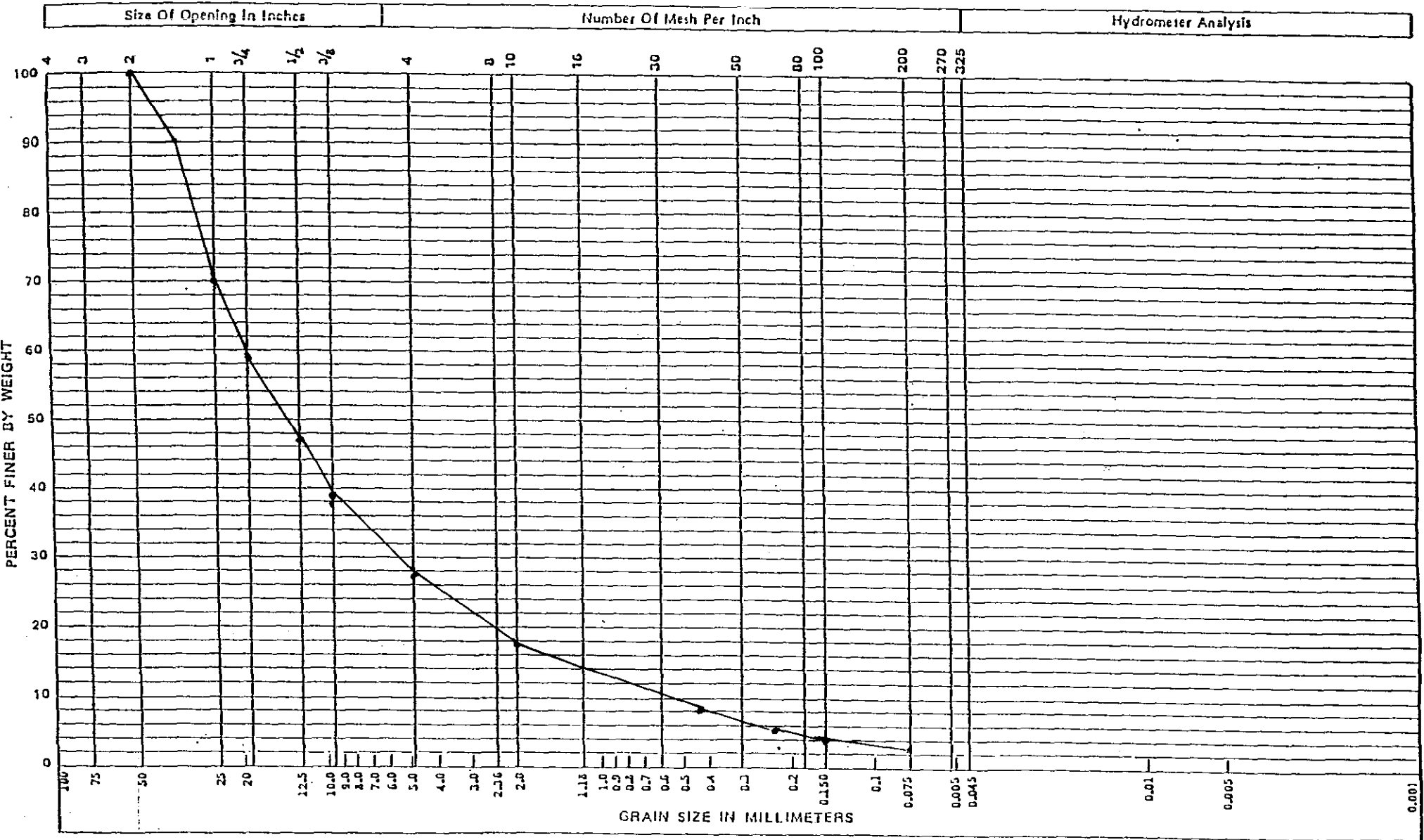
ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS TRAINED AND USED CALIBRATED INSTRUMENTS

Checked By HL Benny

Date 1-26-90

9 2 1 2 1 1 0 7 0 0

## GRAIN SIZE ANALYSIS PLOT

Specimen No. 0-010Procedure No. ETAL-07Rev. 1Date Issued 11-15-89

Sample Description:

SANDY GRAVELMW-14-3

Plotted by:

JR Payne

Date:

1-22-90

Checked by:

HL Benny

Date:

1-26-90

# SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL-14

REV. NO. 1THERMOMETER NO. 0006

CALIBRATION DUE DATE 2-6-80

[illegible]

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

TEST OPERATOR: J.R. Payne

DATE 1-22-90

921210701



Westinghouse  
Hanford Company

CHAIN OF CUSTODY

Company Contact: JW Lindberg Telephone 6-5005  
Sample Collected by: Rand Miller (Golder) Date: Jan 2-4, 1990 Time: NA  
Sample Locations: Temporary Well Number MW-14  
Ice Chest No.: NA Field Logbook & Page No.: WHC-N306-3, Page 33-35  
Remarks: \_\_\_\_\_

Bill of Lading No.: NA Off Site Property No.: NA  
Method of Shipment: Hand Carry  
Shipped to: Jerry Alexander (WHC) 2101-m physical testing laboratory  
Sample Identification

<u>MW-14-3</u>	
<u>MW-14-4 above</u> ✓	
<u>MW-14-5 below</u> ✓	
<u>MW-14-6</u>	
<u>MW-14-7</u>	
<u>MW-14-8</u>	
<u>MW-14-9</u>	
<u>MW-14-10</u>	
<u>MW-14-11</u>	

CHAIN OF POSSESSION

Relinquished by: Jerry Alexander (GAI)  
Relinquished by: JW Lindberg  
Relinquished by: \_\_\_\_\_

Received by: JW Lindberg  
Received by: R.G. ALEXANDER  
Received by: \_\_\_\_\_

Date/Time: 1/6/90 1015  
Date/Time: 1/19/90 -1450  
Date/Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_

Received by: \_\_\_\_\_

Date/Time: \_\_\_\_\_

9212110702

# SAMPLING ANALYSIS REQUEST

## Part I: Field Section

Collector Rand Miller (Golder) Date Sampled Jan 2-4, 1990 Time NA hours

Affiliation of Sampler Golder

Address N/A  
number street city state zip

Telephone (509) 376-5005 Company Contact JW Lindberg (Field Team Leader)

### LABORATORY

SAMPLE  
NUMBER

COLLECTOR'S  
SAMPLE NO.

TYPE OF  
SAMPLE\*

FIELD INFORMATION\*\*

MW-14-3

MW-14-3

Soil

Plastic bag container

MW-14-4

MW-14-4

Soil

Plastic bag container

Analysis Requested Particle Size Analysis and Moisture Content

Special Handling and/or Storage NA

## PART II: LABORATORY SECTION\*\*

Received by \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

Analysis Required \_\_\_\_\_

\* Indicate whether sample is soil, sludge, etc.

\*\*Use back of page for additional information relative to sample location.

Figure 9-19. Example of hazardous waste sample analysis sheet.

9212110703

# RADIATION RELEASE

Bldg. Hon Rapids Date 12-29-89  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-1  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. Hon Rapids Date 12-29-89  
 Released By [Signature]  
 Operational Health Physics  
 Remarks 14-2  
MW 13-2  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-13-3 Date 1-2-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-13  
1 Sample  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-13-4 Date 1-2-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks 1 Sample  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-14-5 Date 1-3-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-14-6 Date 1-3-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-5  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. WM-14-7 Date 1-4-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. WM-14-8 Date 1-4-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks  
 54-3000-022 (09/88)

921261704

# TEST REQUEST FORM

Sample/Specimen No. 0.011 Cost Code/Work Order No. EO 332

Requested By: Org. 80232 Person J. Lindberg Date 1.22.90

Test Requested	No. of Samples	Test Lab Information (Instruction Used)
<u>Sieve Analysis</u>	<u>1</u>	<u>ETAL-07</u>
<u>Hydrometer</u>	<u>1</u>	<u>ETAL-07 (IF REQ)</u>
<u>Moisture</u>	<u>1</u>	<u>ETAL-14</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Remarks FIELD SAMPLE  
MW-14-4

Received By: RG. ALEXANDER Date 1.8.90

Approved By: RG. ALEXANDER Date 1.22.90

9212110705

# SIEVE ANALYSIS DATA SHEET

Sample ID 0-011

Page        of       

Tested By RG. ALEXANDER

Date 1-22-90

Procedure ETAL-07

Rev 1

Date Issued 11-8-90

EQUIPMENT ITEM

CALIBRATION NO.

DATE DUE

Balance

3304

3-25-90

Thermometer

0006

2-6-90

N/A

N/A

N/A

Sample Description SANDY GRAVEL

Sieve Time 10 (min)

reduced by



splitting



quartering



stockpile

(B)

(A)

BEFORE TEST WT. N/A AFTER TEST WT. N/A  $\frac{B-A}{B} \times 100 = \underline{N/A} \% \text{ LOSS}$

Sieve ID Number	Sieve Size	Sample Weight	Cumulative Wt. Retained (g)	% Retained	Cumulative % Retained	Cumulative % Pass	% Pass
<u>N/A</u>	<u>2</u>	<u>2758.24</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>100</u>	<u>100</u>
	<u>1 1/2</u>		<u>0</u>	<u>0</u>	<u>0</u>	<u>100</u>	<u>100</u>
	<u>1</u>		<u>214.27</u>	<u>7.8</u>	<u>7.8</u>	<u>92.2</u>	<u>92.2</u>
	<u>3/4</u>		<u>524.36</u>	<u>19.0</u>	<u>19.0</u>	<u>81.0</u>	<u>81.0</u>
	<u>1/2</u>		<u>767.62</u>	<u>27.8</u>	<u>27.8</u>	<u>72.2</u>	<u>72.2</u>
	<u>3/8</u>		<u>999.32</u>	<u>36.2</u>	<u>36.2</u>	<u>63.8</u>	<u>63.8</u>
	<u>#4</u>	<u>2758.24</u>	<u>1321.91</u>	<u>47.9</u>	<u>47.9</u>	<u>52.1</u>	<u>52.1</u>
	<u>#10</u>	<u>2758.24</u>	<u>1618.44</u>	<u>58.7</u>	<u>58.7</u>	<u>41.3</u>	<u>41.3</u>
	<u>#40</u>	<u>130.52</u>	<u>40.35</u>	<u>30.9</u>	<u>30.9</u>	<u>69.1</u>	<u>28.5</u>
	<u>#60</u>		<u>59.43</u>	<u>45.5</u>	<u>46.5</u>	<u>54.5</u>	<u>22.5</u>
	<u>#100</u>		<u>77.50</u>	<u>59.4</u>	<u>59.4</u>	<u>40.6</u>	<u>16.8</u>
<u>200</u>	<u>200</u>		<u>94.01</u>	<u>72.0</u>	<u>72.0</u>	<u>28.0</u>	<u>11.6</u>

Finess Modules (FM)

(See ASTM C 136-83, Section B.2)

MATERIALS FINER THAN NO. 200 SIEVE BY WASHING

C=Percentage of Material Passing a 200 Sieve 28.0%

D=Original Dry Weight of Sample 130.5g

E=Dry Weight of Sample After Washing/Sieve 94.01g

$C = \frac{D-E}{D} \times 100$

Remarks

WASH GRADING  
Small Field  
Sample

ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS TRAINED AND USED CALIBRATED INSTRUMENTS

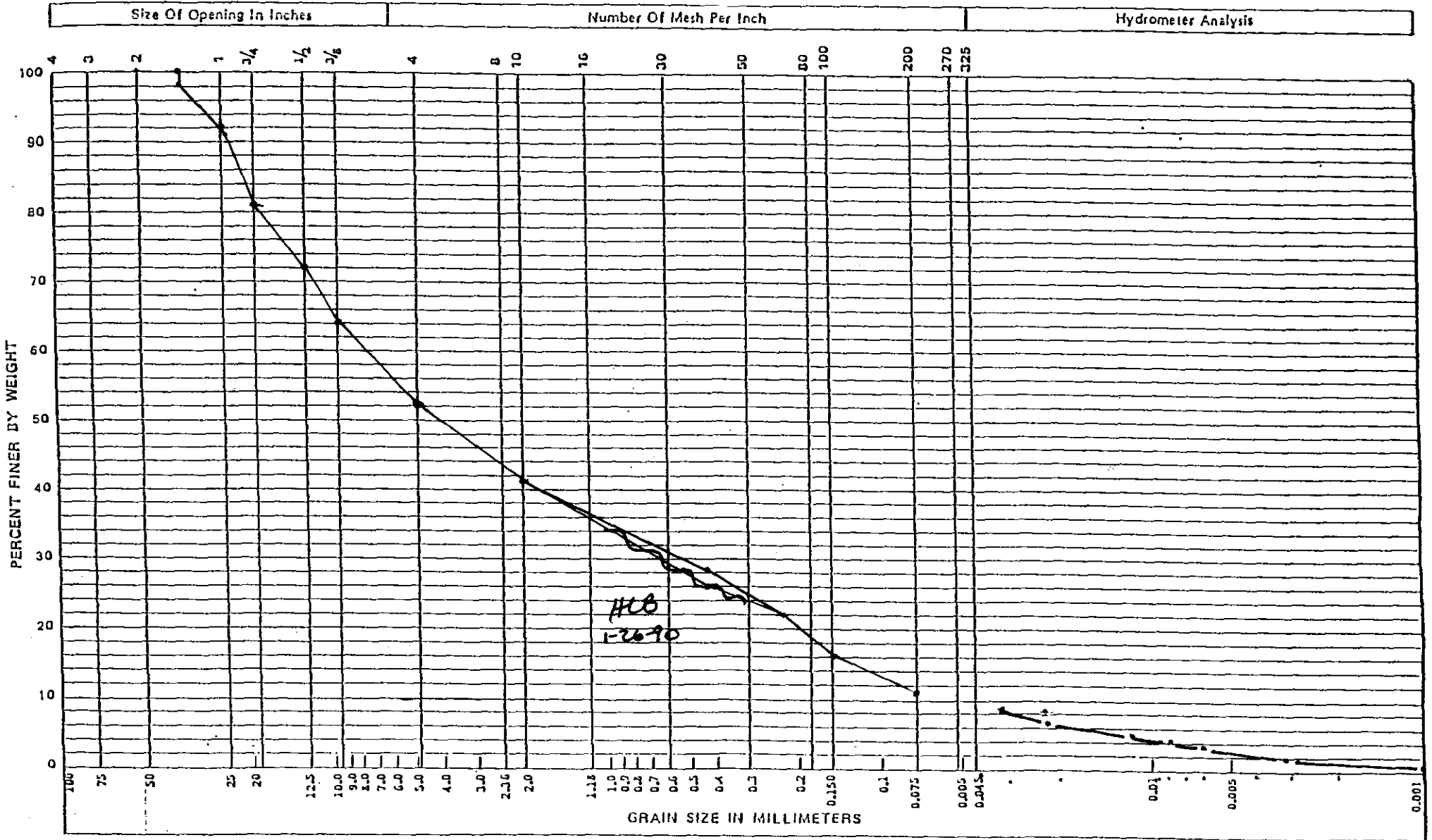
Checked By HL Berry

Date 1-26-90

9212110706

9 2 1 2 1 1 0 7 0 7

## GRAIN SIZE ANALYSIS PLOT

Specimen No. 0-011Procedure No. ETAL-07Rev. 1Date Issued 11-15-89

Sample Description:

SANDY GRAVEL

MW-14.4

Plotted by:

AR Payne

Date:

1-22-90

Checked by:

HCBenny

Date:

1-26-90

CALIBRATION DUE DATE 2-6-90

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

DATE 1-22-90

621703

# HYDROMETER ANALYSIS DATA SHEET

Sample ID 0-011

Page 1 of 1

Tested By R.G. ALEXANDER Date 3-20-90  
 Procedure ETAL-07 Rev 1 Date Issued 11-15-89

EQUIPMENT ITEM	NO.	CALIBRATION DUE DATE
Hydrometer	<u>1000</u>	<u>2-16-91</u>
Balance	<u>3304</u>	<u>3-25-90</u>
Thermometer/Thermocouple	<u>0002</u>	<u>2-9-91</u>

Specific gravity of Sample 2.69

% Passing No. 10 Sieve 41.3 (%)

Hygroscopic Correction Factor N/A

## WEIGHT OF SAMPLE

Wt. Container + Soil N/A (g)

Wt. Container N/A (g)

Wt. Soil 63.04 (g)

## COMPOSITE CORRECTION

1st Reading 5 at 23.6 °C

2nd Reading N/A at N/A °C

## HYGROSCOPIC MOISTURE CONTENT

Wt. Container + Air Dry Soil N/A (g)

Wt. Container + Oven Dry Soil N/A (g)

Wt. Container N/A (g)

Water Content N/A (%)

## REMARKS

TUBE A

Date	Clock time	Elapsed time (min)	Hydrometer reading	Hydrometer with composite correction	Temp. (°C)	Soil in suspension (%)	Particle diameter (mm)
3-20	0932	2.0	18	13	23.8	8.4	0.033
3-20	0935	5.0	15	10	23.8	6.5	0.021
3-20	0945	15.0	13	8	23.9	5.2	0.012
3-20	1000	30.0	12	7	23.8	4.5	0.009
3-20	1030	60.0	10	5	23.8	3.2	0.006
3-20	1340	250.00	8	3	24.5	1.9	0.003
3-21	0930	1,440.0	6	1	23.2	0.6	0.001

Formulas and Tables used to calculate percent Soil in suspension, particle diameter and hygroscopic correction factor are found in ASTM D422.

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND UTILIZED CALIBRATED TEST INSTRUMENTS AS INDICATED ABOVE. APPROVED TEST PROCEDURES WERE FOLLOWED TO PRODUCE THE ABOVE DATA.

Checked By

John Relyea

Date

3-24-90

# SPECIFIC GRAVITY OF SOILS DATA SHEET

Specimen/Sample No. 0-011

Page 1 of 1

Test Operator R.G. ALEXANDER

3-6-90

EQUIPMENT ITEM	NO.	DATE DUE
Balance	<u>3304</u>	<u>3-25-90</u>
Oven Thermometer	<u>0007</u>	<u>8-16-90</u>
Thermometer	<u>0002</u>	<u>2-9-91</u>
Pycnometer	<u>2554</u>	<u>N/A</u>

Wetting Agent "D" WATER

DETERMINATION NO.		1	2	3
	Drying Container No.	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Wt. Container + Oven Dry Soil, ± 0.01g	<u>N/A</u>	<u>---</u>	<u>---</u>
	Wt. Container, ± 0.01g	<u>N/A</u>	<u>---</u>	<u>---</u>
$W_o$	Wt. Oven Dry Soil, g	<u>40.60</u>	<u>---</u>	<u>---</u>
	Pycnometer No.	<u>2554</u>		
	Wt. Pycnometer, g	<u>135.72</u>	<u>---</u>	<u>---</u>
$W_s$	Wt. Pycnometer + Wetting Agent, g	<u>387.08</u>	<u>---</u>	<u>---</u>
$W_b$	Wt. Pycnometer + Wetting Agent + Soil, g	<u>412.22</u>	<u>---</u>	<u>---</u>
	Temperature, $T_x$ at $W_b$ , °C	<u>23.2 C</u>		
$G_w$	Specific Gravity of Wetting Agent at $T_x$	<u>1.00</u>	<u>---</u>	<u>---</u>
$G_t$	Specific Gravity of Soil at $T_x$	<u>2.69</u>	<u>---</u>	<u>---</u>
$G_s$	Specific Gravity of Soil at 20°C	<u>2.69</u>	<u>---</u>	<u>---</u>

$$G_t = \frac{G_w \cdot \gamma_w \cdot W_o}{W_o + (W_b - W_h)}$$

$\gamma_w$  = Unit Weight Of Water (g/cc)

\* $G_s = K \cdot G_t$

K values found in ASTM D854-58, Table 1

\*NOTE  $G_s = G_t$  When Test Run at 20 °c

Average Specific Gravity At 20°C

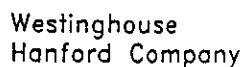
2.69

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND UTILIZED CALIBRATED TEST INSTRUMENTS AS INDICATED ABOVE. APPROVED TEST PROCEDURES WERE FOLLOWED TO PRODUCE THE ABOVE DATA.

Checked By HL Benny

Date 3-7-90

921210710



Company Contact: JW Lindberg Telephone 6-5005

Sample Collected by: Rand Miller (Golder) Date: Jan 2-4, 1990 Time: NA

Sample Locations: Temporary Well Number MW-14

Ice Chest No.: NA Field Logbook & Page No. WHC-N306-3 Page 33-35

Remarks: \_\_\_\_\_

Bill of Lading No.: NA Off Site Property No.: NA

Method of Shipment: Hand Carra

Shipped to: Jerry Alexander (WAC) 2101-m physical testing laboratory

### Sample Identification

MW-14-3

MW-14-4 above  $\nabla$

MW-14-5 below ▽

MW-14-6

MW-14-7

AW-14-8

MW-14-9

MW-14-10

MW-14-11

Relinquished by: Sand at Hill (GAI)

Relinquished by: Ans. D. 3. 10

Ju Lindberg ~~Ju Lindberg~~

Relinquished by:

Relinquished by:

Received by: W. Lindberg

Received by: R.G. ALEXANDER

Received by: *R. H. H. H. H.*

Received by:

Date/Time: 4/6/90 1015

Date/Time: 12/9/90 - 1450

Date/Time:

Date/Time:

# SAMPLING ANALYSIS REQUEST

## Part I: Field Section

Collector Rand Miller (Golder) Date Sampled Jan 2-4, 1990 Time NA hours

Affiliation of Sampler Golder

Address N/A  
 number street city state zip

Telephone (509) 376-5005 Company Contact JW Lindberg (Field Team Leader)

LABORATORY SAMPLE NUMBER	COLLECTOR'S SAMPLE NO.	TYPE OF SAMPLE*	FIELD INFORMATION**
<u>MW-14-3</u>	<u>MW-14-3</u>	<u>Soil</u>	<u>Plastic bag container</u>
<u>MW-14-4</u>	<u>MW-14-4</u>	<u>Soil</u>	<u>Plastic bag container</u>

Analysis Requested Particle Size Analysis and Moisture Content

Special Handling and/or Storage NA

## PART II: LABORATORY SECTION\*\*

Received by \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

Analysis Required \_\_\_\_\_

\* Indicate whether sample is soil, sludge, etc.

\*\*Use back of page for additional information relative to sample location.

Figure 9-19. Example of hazardous waste sample analysis sheet.

9212110712

# RADIATION RELEASE

Bldg. Hon Rapids Date 12-29-89  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-1  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. Hon Rapids Date 12-29-89  
 Released By [Signature]  
 Operational Health Physics  
 Remarks 14-2  
MW 13-2  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-13-3 Date 1-2-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-3  
1 Sample  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-13-4 Date 1-2-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks 1 Sample  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-13-5 Date 1-3-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-13-6 Date 1-3-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-5  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. WM-14-7 Date 1-4-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. WM-14-8 Date 1-4-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks  
 54-3000-022 (09/88)

9212410713

# TEST REQUEST FORM

Sample/Specimen No. 0-012 Cost Code/Work Order No. ED332

Requested By: Org. 80232 Person J. LINDBERG Date 1-22-90

Test Requested	No. of Samples	Test Lab Information (Instruction Used)
<u>SIEVE ANALYSIS</u>	<u>1</u>	<u>ETAL-07</u>
<u>HYDROMETER</u>	<u>1</u>	<u>ETAL-07 (IF REQ)</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Remarks FIELD SAMPLE  
ML-14-S

Received By: P.G. ALEXANDER Date 1-9-90

Approved By: P.G. ALEXANDER Date 1-22-90

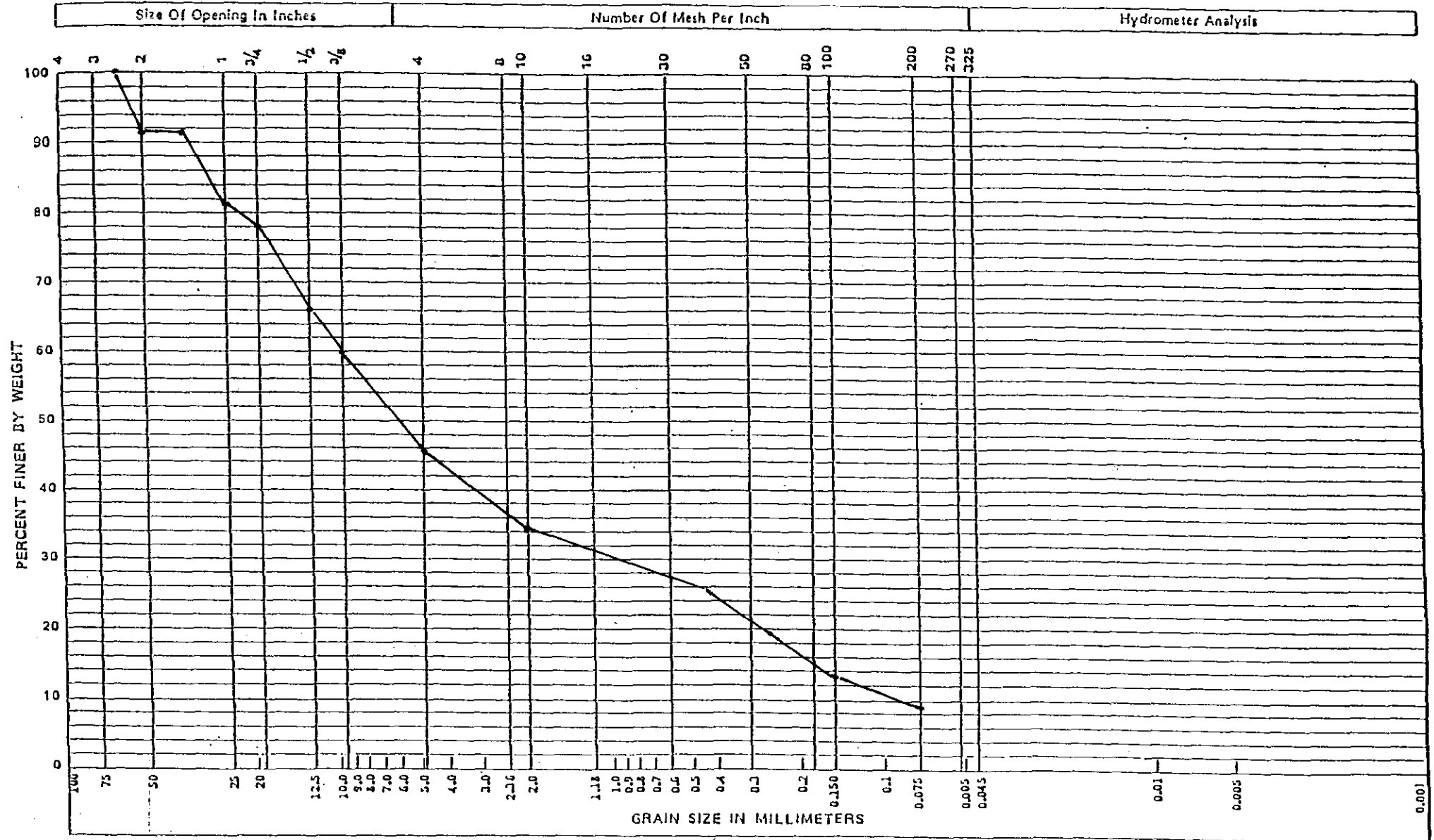
9212110714

9212110715

SIEVE ANALYSIS DATA SHEET							
Sample ID <u>0-012</u>				Page <u>1</u> of <u>1</u>			
Tested By <u>R.G. ALEXANDER</u>				Date <u>1-22-90</u>			
Procedure <u>ETAL-07</u> Rev. <u>1</u>				Date Issued <u>11-15-89</u>			
EQUIPMENT ITEM		CALIBRATION NO.		DATE DUE			
Balance		<u>3304</u>		<u>3-25-90</u>			
Thermometer		<u>0006</u>		<u>2-6-90</u>			
<u>N/A</u>		<u>N/A</u>		<u>N/A</u>			
Sample Description <u>SANDY GRAVEL</u>				Sieve Time <u>10</u> (min)			
reduced by <input checked="" type="checkbox"/> splitting <input type="checkbox"/> quartering <input type="checkbox"/> stockpile							
(B) BEFORE TEST WT. <u>N/A</u> (A) AFTER TEST WT. <u>N/A</u> $\frac{B-A}{B} \times 100 = \underline{N/A} \% \text{ LOSS}$							
Sieve ID Number	Sieve Size	Sample Weight	Cumulative Wt. Retained (g)	% Retained	Cumulative % Retained	Cumulative % Pass	% Pass
<u>N/A</u>	<u>2</u>	<u>2524.21</u>	<u>220.79</u>	<u>8.7</u>	<u>8.7</u>	<u>91.3</u>	<u>91.3</u>
	<u>1 1/2</u>		<u>220.79</u>	<u>8.7</u>	<u>8.7</u>	<u>91.3</u>	<u>91.3</u>
	<u>1</u>		<u>485.94</u>	<u>19.3</u>	<u>19.3</u>	<u>80.7</u>	<u>80.7</u>
	<u>3/4</u>		<u>560.24</u>	<u>22.2</u>	<u>22.2</u>	<u>77.8</u>	<u>77.8</u>
	<u>1/2</u>		<u>850.10</u>	<u>33.7</u>	<u>33.7</u>	<u>66.3</u>	<u>66.3</u>
	<u>3/8</u>		<u>1022.02</u>	<u>40.5</u>	<u>40.5</u>	<u>59.5</u>	<u>59.5</u>
	<u>1/4</u>		<u>1374.46</u>	<u>54.4</u>	<u>54.4</u>	<u>45.6</u>	<u>45.6</u>
	<u>#10</u>	<u>2524.27</u>	<u>1661.03</u>	<u>65.8</u>	<u>65.8</u>	<u>34.2</u>	<u>34.2</u>
	<u>#40</u>	<u>111.85</u>	<u>28.46</u>	<u>25.4</u>	<u>25.4</u>	<u>74.6</u>	<u>25.5</u>
	<u>#60</u>		<u>48.52</u>	<u>43.4</u>	<u>43.4</u>	<u>56.6</u>	<u>19.4</u>
	<u>#100</u>		<u>67.96</u>	<u>60.8</u>	<u>60.8</u>	<u>39.2</u>	<u>19.4</u>
<u>↓</u>	<u>#200</u>	<u>↓</u>	<u>83.03</u>	<u>74.2</u>	<u>74.2</u>	<u>25.8</u>	<u>8.8</u>
Fineness Modules (FM) <u>N/A</u> (See ASTM C 136-83, Section 8.2)							
MATERIALS FINER THAN NO. 200 SIEVE BY WASHING						Remarks	
C=Percentage of Material Passing a 200 Sieve <u>25.8</u> %						<u>WASH GRADING</u>	
D=Original Dry Weight of Sample <u>111.85</u> g						<u>SMALL FIELD</u>	
E=Dry Weight of Sample After Washing/Sieve <u>83.03</u> g						<u>SAMPLE</u>	
$C = \frac{(D-E)}{D} \times 100$							
ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS TRAINED AND USED CALIBRATED INSTRUMENTS Checked By <u>HL Benny</u> Date <u>1-26-90</u>							

9 2 1 2 1 1 0 7 1 6

## GRAIN SIZE ANALYSIS PLOT

Specimen No. 0-012Procedure No. ETAL-07Rev. 1Date Issued 11-15-89

Sample Description:

SANDY GRAVEL  
MW-14-5

Plotted by:

R.G. ALEXANDER

Date:

1-22-90

Checked by:

HLBenny

Date:

1-26-90

SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL-14 REV. NO. Ø

THERMOMETER NO. 0006 CALIBRATION DUE DATE 2-6-90

REV. NO. Ø

CALIBRATION DUE DATE 2-6-90

[illegible]

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR  
WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

TEST OPERATOR: R. G. ALEXANDER DATE 1-22-90

DATE 1-22-90

9212171717



Westinghouse  
Hanford Company

CHAIN OF CUSTODY

Company Contact: JW Lindberg Telephone 6-5005

Sample Collected by: Rand Miller (Golder) Date: Jan 2-4, 1990 Time: NA

Sample Locations: Temporary Well Number MW-14

Ice Chest No.: NA Field Logbook & Page No. WHC-N306-3, Page 33-35

Remarks: \_\_\_\_\_

Bill of Lading No.: NA Off Site Property No.: NA

Method of Shipment: Hand Carry

Shipped to: Jerry Alexander (WAC) 2101-m physical testing laboratory

Sample Identification

<u>MW-14-3</u>	
<u>MW-14-4 above ▽</u>	
<u>MW-14-5 below ▽</u>	
<u>MW-14-6</u>	
<u>MW-14-7</u>	
<u>MW-14-8</u>	
<u>MW-14-9</u>	
<u>MW-14-10</u>	
<u>MW-14-11</u>	

CHAIN OF POSSESSION

Relinquished by: Rand Miller (GAI)

Received by: JW Lindberg JW Lindberg

Date/Time: 1/6/90 1015

Relinquished by: JW Lindberg JW Lindberg

Received by: R.G. ALEXANDER R.G. Alexander

Date/Time: 1/9/90 -1450

Relinquished by: \_\_\_\_\_

Received by: \_\_\_\_\_

Date/Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_

Received by: \_\_\_\_\_

Date/Time: \_\_\_\_\_

921210718

# SAMPLING ANALYSIS REQUEST

## Part I: Field Section

Collector Rand Miller Date Sampled Jan 2-4, 1990 Time NA hours

Affiliation of Sampler Golder

Address NA  
 number street city state zip

Telephone (509) 376-5005 Company Contact JW Lindberg (Field Team Leader)

LABORATORY SAMPLE NUMBER	COLLECTOR'S SAMPLE NO.	TYPE OF SAMPLE*	FIELD INFORMATION**
	<u>MW-14-5</u>	<u>Soil</u>	<u>Plastic bag Container</u>
	<u>MW-14-6</u>	<u>Soil</u>	<u>" " "</u>
	<u>MW-14-7</u>	<u>Soil</u>	<u>" " "</u>
	<u>MW-14-8</u>	<u>Soil</u>	<u>" " "</u>

Analysis Requested Particle Size Analysis

Special Handling and/or Storage NA

## PART II: LABORATORY SECTION\*\*

Received by \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

Analysis Required \_\_\_\_\_

\* Indicate whether sample is soil, sludge, etc.

\*\*Use back of page for additional information relative to sample location.

Figure 9-19. Example of hazardous waste sample analysis sheet.

9212110719

# RADIATION RELEASE

Bldg. How Reports Date 12-29-89  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-1  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. How Reports Date 12-29-89  
 Released By [Signature]  
 Operational Health Physics  
 Remarks 14-2  
MW 13-2  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-13-3 Date 1-2-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-3  
1 Sample  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-13-4 Date 1-2-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks 1 Sample  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-13-5 Date 1-3-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks [Signature]  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-13-6 Date 1-3-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-5  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. WM-14-7 Date 1-4-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks [Signature]  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. WM-14-8 Date 1-4-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks [Signature]  
 54-3000-022 (09/88)

9212110720

# TEST REQUEST FORM

Sample/Specimen No. 0-013 Cost Code/Work Order No. ED 332

Requested By: Org. 80232 Person J. LINDBERG Date 1-22-90

Test Requested	No. of Samples	Test Lab Information (Instruction Used)
<u>SIEVE ANALYSIS</u>	<u>1</u>	<u>ETAL-07</u>
<u>HYDROMETER</u>	<u>1</u>	<u>ETAL-07 (IF REQ)</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Remarks FIELD SAMPLE  
MW-14-6

Received By: R. G. ALEXANDER Date 1-9-90

Approved By: R. G. ALEXANDER Date 1-22-90

9212111721

# SIEVE ANALYSIS DATA SHEET

Sample ID 0-013

Page 1 of 1

Tested By R.G. ALEXANDER

Date 1-22-90

Procedure ETAL-07

Rev 1

Date Issued 11-15-89

EQUIPMENT ITEM

CALIBRATION NO.

DATE DUE

Balance

3304

3-25-90

Thermometer

0006

2-6-90

N/A

N/A

N/A

Sample Description SANDY GRAVEL

Sieve Time 10 (min)

reduced by ☒ splitting

☐ quartering

☐ stockpile

(B) BEFORE TEST WT. N/A (A) AFTER TEST WT. N/A  $\frac{B-A}{B} \times 100 = \underline{N/A} \% \text{ LOSS}$

Sieve ID Number	Sieve Size	Sample Weight	Cumulative Wt. Retained (g)	% Retained	Cumulative % Retained	Cumulative % Pass	% Pass
<u>N/A</u>	<u>2</u>	<u>2946.38</u>	<u>288.03</u>	<u>9.8</u>	<u>9.8</u>	<u>90.2</u>	<u>90.2</u>
	<u>1 1/2</u>		<u>596.24</u>	<u>20.2</u>	<u>20.2</u>	<u>79.8</u>	<u>79.8</u>
	<u>1</u>		<u>859.59</u>	<u>29.2</u>	<u>29.2</u>	<u>70.8</u>	<u>70.8</u>
	<u>3/4</u>		<u>1259.61</u>	<u>42.8</u>	<u>42.8</u>	<u>57.2</u>	<u>57.2</u>
	<u>1/2</u>		<u>1284.15</u>	<u>43.6</u>	<u>43.6</u>	<u>56.4</u>	<u>56.4</u>
	<u>3/8</u>		<u>1369.09</u>	<u>46.5</u>	<u>46.5</u>	<u>53.5</u>	<u>53.5</u>
	<u>#4</u>		<u>1598.19</u>	<u>54.2</u>	<u>54.2</u>	<u>45.8</u>	<u>45.8</u>
	<u>#10</u>	<u>2946.38</u>	<u>1786.06</u>	<u>60.6</u>	<u>60.6</u>	<u>39.4</u>	<u>39.4</u>
	<u>#40</u>	<u>152.54</u>	<u>28.09</u>	<u>18.4</u>	<u>18.4</u>	<u>81.6</u>	<u>32.2</u>
	<u>#60</u>		<u>80.07</u>	<u>52.5</u>	<u>52.6</u>	<u>47.5</u>	<u>18.7</u>
	<u>#100</u>		<u>118.12</u>	<u>77.4</u>	<u>77.4</u>	<u>22.6</u>	<u>8.9</u>
	<u>#200</u>		<u>133.27</u>	<u>87.4</u>	<u>87.4</u>	<u>12.6</u>	<u>5.0</u>

Finess Modules (FM) N/A (See ASTM C 136-03, Section 8.2)

## MATERIALS FINER THAN NO. 200 SIEVE BY WASHING

C=Percentage of Material Passing a 200 Sieve 12.6 %

D=Original Dry Weight of Sample 152.54 g

E=Dry Weight of Sample After Washing/Sieve 33.27 g

$C = \frac{D-E}{D} \times 100$

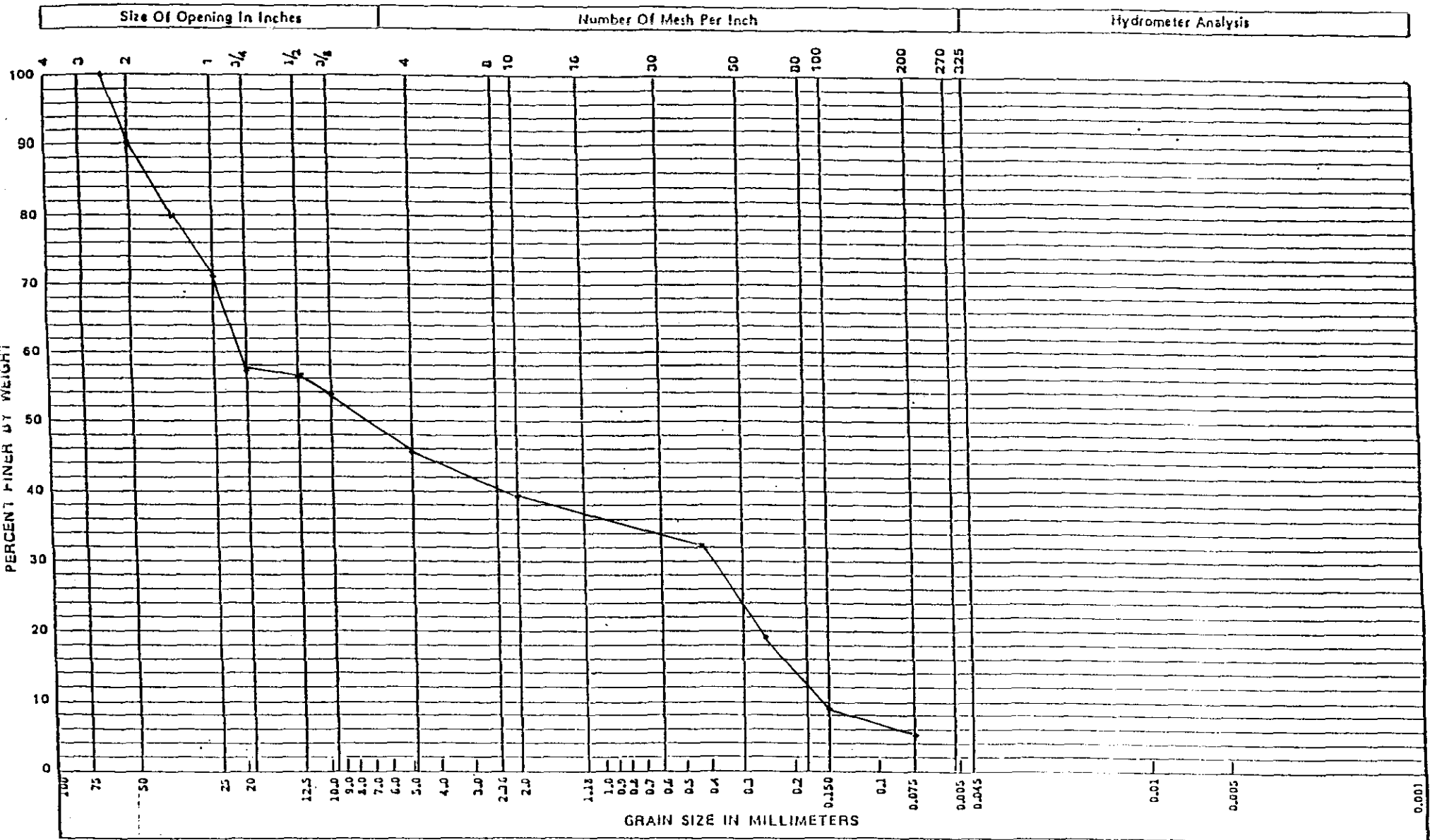
Remarks

WASH GRAVING  
SMALL FIELD  
SAMPLE

ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS TRAINED AND USED CALIBRATED INSTRUMENTS  
Checked By HL BENNY Date 1-26-90

9 2 1 2 1 0 7 2 3

## GRAIN SIZE ANALYSIS PLOT

Specimen No. 0-013Procedure No. ETAL-07Rev. 1Date Issued 11-15-89

Sample Description: SANDY GRAVEL  
MW-14-6

Plotted by: RG ALEXANDERDate: 1-22-90Checked by: HL BennyDate: 1-26-90

PROCEDURE NO. ETAL-14

REV. NO. 0THERMOMETER NO. 0006

CALIBRATION DUE DATE 2-6-90

[illegible]

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

TEST OPERATOR: R. G. ALEXANDER

DATE 1-22-90

92120724



# SAMPLING ANALYSIS REQUEST

## Part I: Field Section

Collector Rand Miller Date Sampled Jan 2-4, 1990 Time NA hours

Affiliation of Sampler Golder

Address NA  
 number street city state zip

Telephone (509) 376-5605 Company Contact JW Lindberg (Field Team Leader)

LABORATORY  
SAMPLE  
NUMBER

COLLECTOR'S  
SAMPLE NO.

TYPE OF  
SAMPLE\*

FIELD INFORMATION\*\*

	<u>MW-14-5</u>	<u>Soil</u>	<u>Plastic bag Container</u>
	<u>MW-14-6</u>	<u>Soil</u>	<u>" " "</u>
	<u>MW-14-7</u>	<u>Soil</u>	<u>" " "</u>
	<u>MW-14-8</u>	<u>Soil</u>	<u>" " "</u>

Analysis Requested Particle Size Analysis

Special Handling and/or Storage NA

## PART II: LABORATORY SECTION\*\*

Received by \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

Analysis Required \_\_\_\_\_

\* Indicate whether sample is soil, sludge, etc.

\*\*Use back of page for additional information relative to sample location.

Figure 9-19. Example of hazardous waste sample analysis sheet.

# RADIATION RELEASE

Bldg. How Reports Date 12-29-89  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-1  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. How Reports Date 12-29-89  
 Released By [Signature]  
 Operational Health Physics  
 Remarks 14-2  
MW 13-2  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-14-3 Date 1-2-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-13  
1 Sample  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-13-4 Date 1-2-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks 1 Sample  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-14-5 Date 1-3-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-14-6 Date 1-3-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-5  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. WM-14-7 Date 1-4-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. WM-14-8 Date 1-4-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks  
 54-3000-022 (09/88)

9212727

# TEST REQUEST FORM

Sample/Specimen No. 0-014 Cost Code/Work Order No. ED332

Requested By: Org. 80232 Person J. LINDBERG Date 1-23-90

Test Requested	No. of Samples	Test Lab Information (Instruction Used)
<u>SIEVE ANALYSIS</u>	<u>1</u>	<u>ETAL-07</u>
<u>HYDROMETER</u>	<u>1</u>	<u>ETAL-07 (IF REQ.)</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Remarks FIELD SAMPLE  
MW-14-7

Received By: R.G. ALEXANDER Date 1-9-90

Approved By: R.G. ALEXANDER Date 1-22-90

9212110723

# SIEVE ANALYSIS DATA SHEET

Sample ID 0-014

Page 1 of 1

Tested By R. G ALEXANDER

Date 1-22-90

Procedure ETAL-07

Rev 1

Date Issued 11-15-89

EQUIPMENT ITEM

CALIBRATION NO.

DATE DUE

Balance

3304

3-25-90

Thermometer

0006

2-6-90

N/A

N/A

N/A

Sample Description SANDY GRAVEL

Sieve Time 10 (min)

reduced by ☒ splitting

☐ quartering

☐ stockpile

(B) BEFORE TEST WT. N/A (A) AFTER TEST WT. N/A  $\frac{B-A}{B} \times 100 = \frac{N/A}{N/A} \% \text{ LOSS}$

Sieve ID Number	Sieve Size	Sample Weight	Cumulative Wt. Retained (g)	% Retained	Cumulative % Retained	Cumulative % Pass	% Pass
<u>N/A</u>	<u>2</u>	<u>2588.13</u>	<u>269.58</u>	<u>10.4</u>	<u>10.4</u>	<u>89.6</u>	<u>89.6</u>
	<u>1 1/2</u>		<u>530.75</u>	<u>20.5</u>	<u>20.5</u>	<u>79.5</u>	<u>79.5</u>
	<u>1</u>		<u>930.75</u>	<u>36.0</u>	<u>36.0</u>	<u>64.0</u>	<u>64.0</u>
	<u>3/4</u>		<u>985.94</u>	<u>38.1</u>	<u>38.1</u>	<u>61.9</u>	<u>61.9</u>
	<u>1/2</u>		<u>1123.07</u>	<u>43.4</u>	<u>43.4</u>	<u>56.6</u>	<u>56.6</u>
	<u>3/8</u>		<u>1261.00</u>	<u>48.7</u>	<u>48.7</u>	<u>51.3</u>	<u>51.3</u>
	<u>#4</u>	<u>↓</u>	<u>1584.05</u>	<u>61.2</u>	<u>61.2</u>	<u>38.8</u>	<u>38.8</u>
	<u>#10</u>	<u>2588.13</u>	<u>1928.28</u>	<u>74.5</u>	<u>74.5</u>	<u>25.5</u>	<u>25.5</u>
	<u>#40</u>	<u>98.72</u>	<u>28.45</u>	<u>28.8</u>	<u>28.8</u>	<u>71.2</u>	<u>18.2</u>
	<u>#60</u>		<u>48.20</u>	<u>48.8</u>	<u>48.8</u>	<u>51.2</u>	<u>13.1</u>
	<u>#100</u>		<u>66.32</u>	<u>67.2</u>	<u>67.2</u>	<u>32.8</u>	<u>8.4</u>
<u>↓</u>	<u>#200</u>	<u>↓</u>	<u>77.10</u>	<u>78.1</u>	<u>78.1</u>	<u>21.9</u>	<u>5.6</u>

Finess Modules (FM) N/A (See ASTM C 136-83, Section B.2)

MATERIALS FINER THAN NO. 200 SIEVE BY WASHING

C=Percentage of Material Passing a 200 Sieve 21.9 %

D=Original Dry Weight of Sample 98.72g

E=Dry Weight of Sample After Washing/Sieve 77.10g

$C = \frac{D-E}{D} \times 100$

Remarks

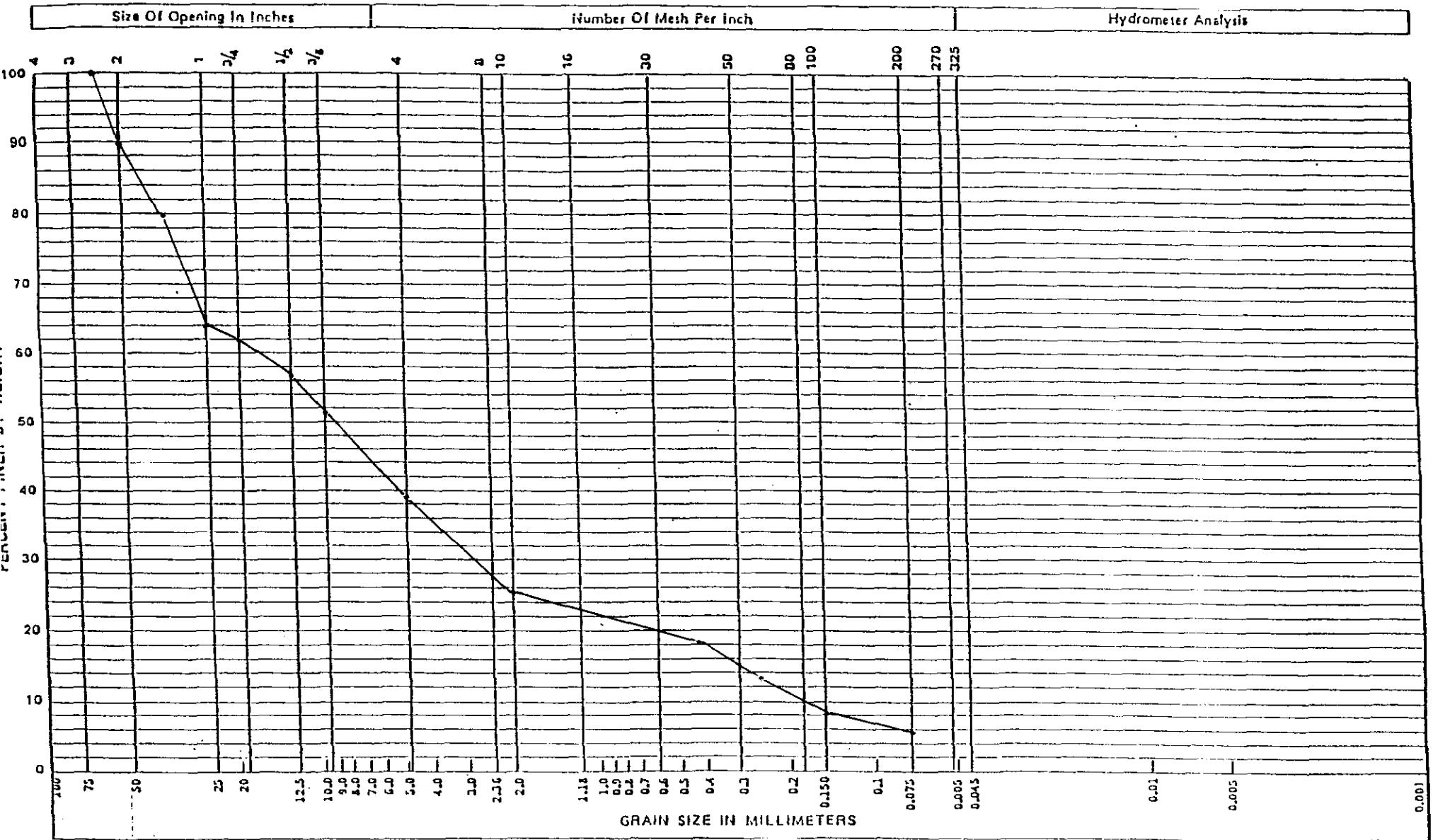
WASH GRADING  
SMALL FIELD  
SAMPLE

ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS TRAINED AND USED CALIBRATED INSTRUMENTS  
Checked By HL Benny Date 1-26-90

9212112126

9 2 1 2 1 1 0 7 3 0

## GRAIN SIZE ANALYSIS PLOT

Specimen No. 0-014Procedure No. ETAL-07Rev. 1Date Issued 11-15-90

Sample Description:

SANDY GRAVEL  
MW-14-7

Plotted by:

R.G. ALEXANDER

Date:

1-22-90

Checked by:

HL BENNY

Date:

1-26-90

# SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL-14

REV. NO. ØTHERMOMETER NO. 0006

CALIBRATION DUE DATE 2-6-90

[illegible]

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

TEST OPERATOR: R.G. ALEXANDER

DATE 1-22-98

9212119731



Westinghouse  
Hanford Company

### CHAIN OF CUSTODY

Company Contact: JW Lindberg Telephone 6-5005

Sample Collected by: Rand Miller (Golder) Date: Jan 2-4, 1990 Time: NA

Sample Locations: Temporary Well Number MW-14

Ice Chest No.: NA Field Logbook & Page No.: WHC-N306-3, Page 33-35

Remarks: \_\_\_\_\_

Bill of Lading No.: NA Off Site Property No.: NA

Method of Shipment: Hand Carry

Shipped to: Jerry Alexander (WHC) 2101-M physical testing laboratory

#### Sample Identification

<u>MW-14-3</u>	
<u>MW-14-4 above ▽</u>	
<u>MW-14-5 below ▽</u>	
<u>MW-14-6</u>	
<u>MW-14-7</u>	
<u>MW-14-8</u>	
<u>MW-14-9</u>	
<u>MW-14-10</u>	
<u>MW-14-11</u>	

#### CHAIN OF POSSESSION

Relinquished by: Rand Miller (GAI)

Relinquished by: JW Lindberg

Relinquished by: \_\_\_\_\_

Relinquished by: \_\_\_\_\_

Received by: JW Lindberg

Received by: R.G. Alexander

Received by: \_\_\_\_\_

Received by: \_\_\_\_\_

Date/Time: 4/6/90 1015

Date/Time: 1/9/90 - 1450

Date/Time: \_\_\_\_\_

Date/Time: \_\_\_\_\_

# SAMPLING ANALYSIS REQUEST

## Part I: Field Section

Collector Rand Miller Date Sampled Jan 2-4, 1990 Time NA hours

Affiliation of Sampler Golder

Address NA  
 number street city state zip

Telephone (509) 376-5005 Company Contact JW Lindberg (Field Team Leader)

LABORATORY  
 SAMPLE  
 NUMBER

COLLECTOR'S  
 SAMPLE NO.

TYPE OF  
 SAMPLE\*

FIELD INFORMATION\*\*

	<u>MW-14-5</u>	<u>Soil</u>	<u>Plastic bag Container</u>
	<u>MW-14-6</u>	<u>Soil</u>	<u>" " "</u>
	<u>MW-14-7</u>	<u>Soil</u>	<u>" " "</u>
	<u>MW-14-8</u>	<u>Soil</u>	<u>" " "</u>

Analysis Requested Particle Size Analysis

Special Handling and/or Storage NA

## PART II: LABORATORY SECTION\*\*

Received by \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

Analysis Required \_\_\_\_\_

\* Indicate whether sample is soil, sludge, etc.

\*\*Use back of page for additional information relative to sample location.

Figure 9-19. Example of hazardous waste sample analysis sheet.

## RADIATION RELEASE

Bldg. How Reports Date 12-29-89  
Released By [Signature]  
Operational Health Physics  
Remarks MW-14-1  
54-3000-022 (09/88)

## RADIATION RELEASE

Bldg. How Reports Date 12-29-89  
Released By [Signature]  
Operational Health Physics  
Remarks 14-2  
MW 13-2  
54-3000-022 (09/88)

## RADIATION RELEASE

Bldg. MW-13-3 Date 1-2-90  
Released By [Signature]  
Operational Health Physics  
Remarks MW-14-13  
1 Sample  
54-3000-022 (09/88)

## RADIATION RELEASE

Bldg. MW-13-4 Date 1-2-90  
Released By [Signature]  
Operational Health Physics  
Remarks 1 Sample  
54-3000-022 (09/88)

## RADIATION RELEASE

Bldg. MW-13-5 Date 1-3-90  
Released By [Signature]  
Operational Health Physics  
Remarks  
54-3000-022 (09/88)

## RADIATION RELEASE

Bldg. MW-13-6 Date 1-3-90  
Released By [Signature]  
Operational Health Physics  
Remarks MW-14-5  
54-3000-022 (09/88)

## RADIATION RELEASE

Bldg. WM-14-7 Date 1-4-90  
Released By [Signature]  
Operational Health Physics  
Remarks  
54-3000-022 (09/88)

## RADIATION RELEASE

Bldg. WM-14-8 Date 1-4-90  
Released By [Signature]  
Operational Health Physics  
Remarks  
54-3000-022 (09/88)

# TEST REQUEST FORM

Sample/Specimen No. 0-015 Cost Code/Work Order No. ED 332

Requested By: Org. 80232 Person J. LINDBERG Date 1-22-90

Test Requested	No. of Samples	Test Lab Information (Instruction Used)
<u>SIEVE ANALYSIS</u>	<u>1</u>	<u>ETAL-07</u>
<u>HYDROMETER</u>	<u>1</u>	<u>ETAL-07 (IF REQ)</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Remarks FIELD SAMPLE  
MW-14-B

Received By: R.G. ALEXANDER Date 1-9-90

Approved By: R.G. ALEXANDER Date 1-22-90

9212110735

# SIEVE ANALYSIS DATA SHEET

Sample ID 0-015

Page 1 of 1

Tested By R.G. ALEXANDER

Date 1-22-90

Procedure ETAL-07

Rev 1

Date Issued 11-15-89

EQUIPMENT ITEM

CALIBRATION NO.

DATE DUE

Balance

3304

3-25-90

Thermometer

0006

2-6-90

N/A

N/A

N/A

Sample Description SILTY SAND

Sieve Time 10 (min)

reduced by ☒ splitting

☐ quartering

☐ stockpile

(B) BEFORE TEST WT. \_\_\_\_\_ (A) AFTER TEST WT. \_\_\_\_\_  $\frac{B-A}{B} \times 100 =$  \_\_\_\_\_ % LOSS

Sieve ID Number	Sieve Size	Sample Weight	Cumulative Wt. Retained (g)	% Retained	Cumulative % Retained	Cumulative % Pass	% Pass
<u>N/A</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>
	<u>1</u>	<u>∅</u>	<u>∅</u>	<u>∅</u>	<u>∅</u>	<u>100</u>	<u>100</u>
	<u>3/4</u>	<u>1236.03</u>	<u>30.11</u>	<u>2.4</u>	<u>2.4</u>	<u>97.6</u>	<u>97.6</u>
	<u>1/2</u>		<u>72.41</u>	<u>5.9</u>	<u>5.9</u>	<u>94.1</u>	<u>94.1</u>
	<u>3/8</u>		<u>117.42</u>	<u>9.5</u>	<u>9.5</u>	<u>90.5</u>	<u>90.5</u>
	<u>#4</u>	<u>↓</u>	<u>190.46</u>	<u>15.4</u>	<u>15.4</u>	<u>84.6</u>	<u>84.6</u>
	<u>#10</u>	<u>1236.03</u>	<u>267.96</u>	<u>21.7</u>	<u>21.7</u>	<u>78.3</u>	<u>78.3</u>
	<u>#40</u>	<u>126.45</u>	<u>6.78</u>	<u>5.4</u>	<u>5.4</u>	<u>94.6</u>	<u>74.1</u>
	<u>#60</u>	<u>↑</u>	<u>19.56</u>	<u>15.5</u>	<u>15.5</u>	<u>84.5</u>	<u>66.2</u>
	<u>#100</u>		<u>36.95</u>	<u>24.5</u>	<u>24.5</u>	<u>75.5</u>	<u>59.1</u>
<u>↓</u>	<u>#200</u>	<u>↓</u>	<u>47.69</u>	<u>37.7</u>	<u>37.7</u>	<u>62.3</u>	<u>48.8</u>

Finess Modules (FM) N/A (See ASTM C 136-83, Section 8.2)

## MATERIALS FINER THAN NO. 200 SIEVE BY WASHING

C=Percentage of Material Passing a 200 Sieve 62.3 %

D=Original Dry Weight of Sample

126.45g

E=Dry Weight of Sample After Washing/Sieve 47.69g

$$C = \frac{(D-E)}{D} \times 100$$

Remarks

WASH GRADING  
SMALL FIELD  
SAMPLE

ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS TRAINED AND USED CALIBRATED INSTRUMENTS

Checked By HC Benny

Date 1-26-90

# HYDROMETER ANALYSIS DATA SHEET

Sample ID 0-015

Page 1 of 1

Tested By H. L. Benny Date 2-25-90  
 Procedure ETAL-07 Rev 1 Date Issued 11-15-89

EQUIPMENT ITEM	NO.	CALIBRATION DUE DATE
Hydrometer	<u>ETAL-1000</u>	<u>2-16-91</u>
Balance	<u>ETAL-3204</u>	<u>3-25-90</u>
Thermometer/Thermocouple	<u>ETAL-0002</u>	<u>2-9-91</u>

Specific gravity of Sample 2.30 (see 9-088)

% Passing No. 10 Sieve 78.3 (%)

Hygroscopic Correction Factor 0

## WEIGHT OF SAMPLE

Wt. Container + Soil NA (g)

Wt. Container NA (g)

Wt. Soil 52.18 (g)

## COMPOSITE CORRECTION

1st Reading 6 at 22.4 °C

2nd Reading NA at NA °C

## HYGROSCOPIC MOISTURE CONTENT

Wt. Container + Air Dry Soil NA (g)

Wt. Container + Oven Dry Soil NA (g)

Wt. Container NA (g)

Water Content NA (%)

## REMARKS

Tube B

W = 66.64

Assume "q" = 1.11, K = 0.01447

Date	Clock time	Elapsed time (min)	Hydrometer reading	Hydrometer with composite correction	Temp. (°C)	Soil in suspension (%)	Particle diameter (mm)
2/25/90	0820	2.0	21	15	23.2	25.0	0.038
	0823	5.0	13	7	23.1	11.7	0.025
	0833	15.0	12	6	22.9	10.0	0.015
	0848	30.0	10	4	22.8	6.7	0.010
	0918	60.0	9	3	22.3	5.0	0.007
	1228	250.00	8	2	21.8	3.3	0.004
2/26/90	0818	1,440.0	7	1	21.5	1.7	0.002

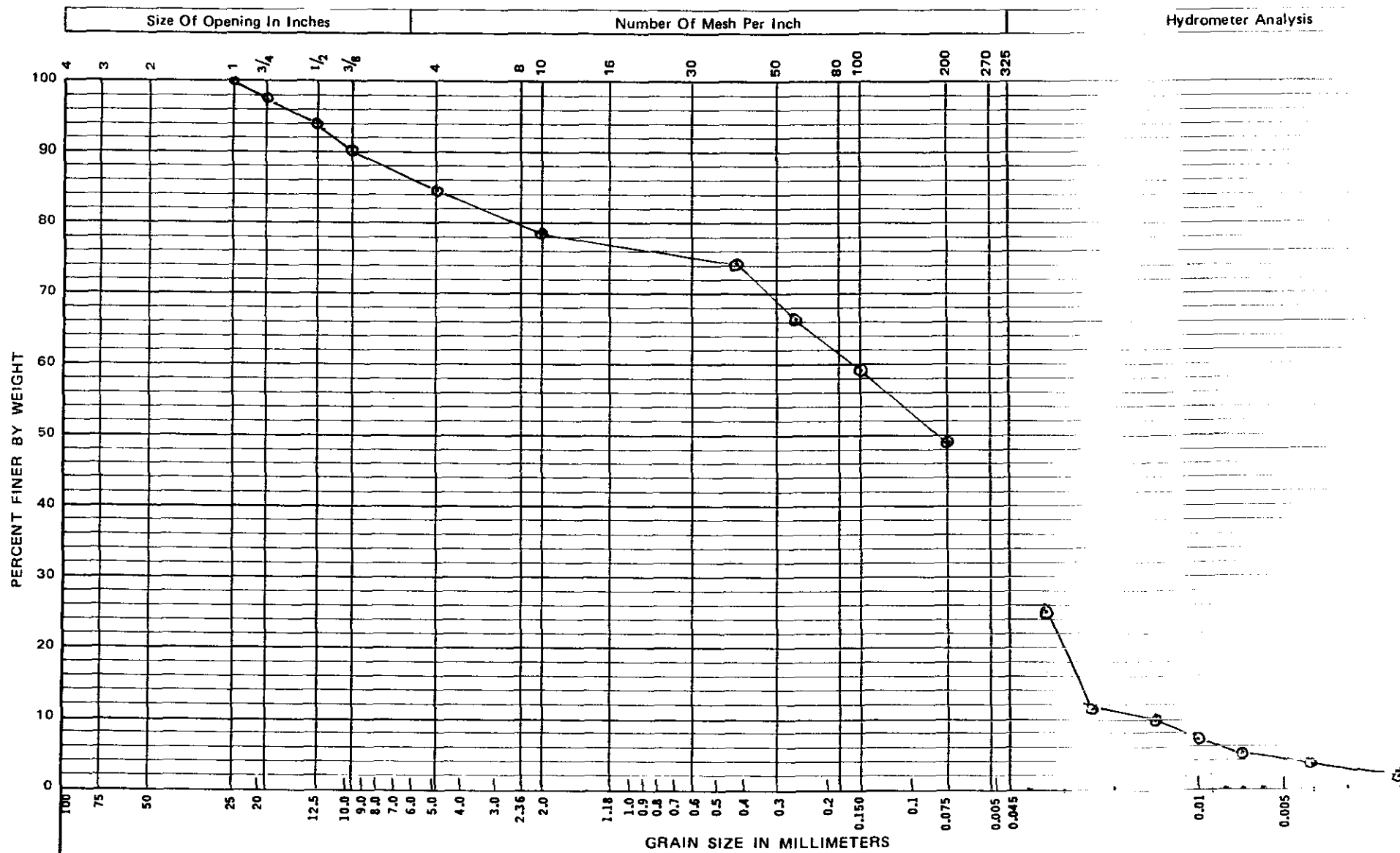
Formulas and Tables used to calculate percent Soil in suspension, particle diameter and hygroscopic correction factor are found in ASTM D422.

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND UTILIZED CALIBRATED TEST INSTRUMENTS AS INDICATED ABOVE. APPROVED TEST PROCEDURES WERE FOLLOWED TO PRODUCE THE ABOVE DATA.

Checked By R. G. Alexander Date 3-5-90

9 2 1 2 1 1 0 7 3 3

## GRAIN SIZE ANALYSIS PLOT

Specimen No. 0-016Procedure No. ETAL-07Rev. 1Date Issued 11-15-89

Sample Description:

Silty Sand  
NW-14-B

Plotted by:

RG Alexander

Checked by:

HL Benny

Date:

1-22-90

Date:

1-26-90

SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL-14 REV. NO. Ø

THERMOMETER NO. 0006 CALIBRATION DUE DATE 2-6-90

REV. NO. Ø

CALIBRATION DUE DATE 2-6-90

[illegible]

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

DATE 1-22-90



Westinghouse  
Hanford Company

CHAIN OF CUSTODY

Company Contact: JW Lindberg Telephone 6-5005

Sample Collected by: Rand Miller (Golder) Date: Jan 2-4, 1990 Time: NA

Sample Locations: Temporary Well Number MW-14

Ice Chest No.: NA Field Logbook & Page No. WHC-N306-3, Page 33-35

Remarks: \_\_\_\_\_

Bill of Lading No.: NA Off Site Property No.: NA

Method of Shipment: Hand Carry

Shipped to: Jerry Alexander (WHC) 2101-M physical testing laboratory

Sample Identification

Sample Identification	
<u>MW-14-3</u>	
<u>MW-14-4 above ▽</u>	
<u>MW-14-5 below ▽</u>	
<u>MW-14-6</u>	
<u>MW-14-7</u>	
<u>MW-14-8</u>	
<u>MW-14-9</u>	
<u>MW-14-10</u>	
<u>MW-14-11</u>	

CHAIN OF POSSESSION

Relinquished by: Jerry Alexander (GAI)

Received by: JW Lindberg

Date/Time: 1/6/90 1015

Relinquished by: JW Lindberg

Received by: R.G. Alexander

Date/Time: 1/9/90 - 1450

Relinquished by: \_\_\_\_\_

Received by: \_\_\_\_\_

Date/Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_

Received by: \_\_\_\_\_

Date/Time: \_\_\_\_\_

# SAMPLING ANALYSIS REQUEST

## Part I: Field Section

Collector Rand Miller Date Sampled Jan 2-4, 1990 Time NA hours

Affiliation of Sampler Golder

Address NA  
number street city state zip

Telephone (509) 376-5005 Company Contact JW Lindberg (Field Team Leader)

LABORATORY SAMPLE NUMBER	COLLECTOR'S SAMPLE NO.	TYPE OF SAMPLE*	FIELD INFORMATION**
	<u>MW-14-5</u>	<u>Soil</u>	<u>Plastic bag Container</u>
	<u>MW-14-6</u>	<u>Soil</u>	<u>" " "</u>
	<u>MW-14-7</u>	<u>Soil</u>	<u>" " "</u>
	<u>MW-14-8</u>	<u>Soil</u>	<u>" " "</u>

Analysis Requested Particle Size Analysis

Special Handling and/or Storage NA

## PART II: LABORATORY SECTION\*\*

Received by \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

Analysis Required \_\_\_\_\_

\* Indicate whether sample is soil, sludge, etc.

\*\*Use back of page for additional information relative to sample location.

Figure 9-19. Example of hazardous waste sample analysis sheet.

# RADIATION RELEASE

Bldg. How Reports Date 12-29-89  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-1  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. How Reports Date 12-29-89  
 Released By [Signature]  
 Operational Health Physics  
 Remarks 14-2  
MW 13-2  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-13-3 Date 1-2-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-13  
1 Sample  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-13-4 Date 1-2-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks 1 Sample  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-13-5 Date 1-3-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-13-6 Date 1-3-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-5  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. WM-14-7 Date 1-4-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. WM-14-8 Date 1-4-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks  
 54-3000-022 (09/88)

9212110742

# TEST REQUEST FORM

Sample/Specimen No. 0-016 Cost Code/Work Order No. ED 332

Requested By: Org. 80232 Person J. LINDBERG Date 1-23-90

Test Requested	No. of Samples	Test Lab Information (Instruction Used)
<u>SIEVE ANALYSIS</u>	<u>1</u>	<u>ETAL-07</u>
<u>HYDROMETER</u>	<u>1</u>	<u>ETAL-07 (IF REQ)</u>
<u>ATTERBERG Limits</u>	<u>1</u>	<u>ETAL-18</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Remarks FIELD SAMPLE  
MW-14-9

Received By: R.G. ALEXANDER Date 1-9-90

Approved By: R.G. ALEXANDER Date 1-23-90

921210743

# SIEVE ANALYSIS DATA SHEET

Sample ID 0-016

Page 1 of 1

Tested By R. G. ALEXANDER

Date 1-23-90

Procedure ETAL-07

Rev 1

Date Issued 11-15-89

EQUIPMENT ITEM

CALIBRATION NO.

DATE DUE

Balance

3304

3-25-90

Thermometer

0006

2-6-90

N/A

N/A

N/A

Sample Description SANDY SAND

Sieve Time 10 (min)

reduced by ☒ splitting

☐ quartering

☐ stockpile

(B)

(A)

BEFORE TEST WT. N/A AFTER TEST WT. N/A  $\frac{B-A}{B} \times 100 = \frac{N/A}{N/A} \% \text{ LOSS}$

Sieve ID Number	Sieve Size	Sample Weight	Cumulative Wt. Retained (g)	% Retained	Cumulative % Retained	Cumulative % Pass	% Pass
<u>N/A</u>							
	<u>#14</u>					<u>100</u>	<u>100</u>
	<u>#10</u>	<u>102.65</u>	<u>0.70</u>	<u>0.7</u>	<u>0.7</u>	<u>99.3</u>	<u>99.3</u>
	<u>#40</u>		<u>14.44</u>	<u>14.1</u>	<u>14.1</u>	<u>85.9</u>	<u>85.9</u>
	<u>#60</u>		<u>16.54</u>	<u>16.1</u>	<u>16.1</u>	<u>83.9</u>	<u>83.9</u>
	<u>#100</u>		<u>19.32</u>	<u>17.8</u>	<u>17.8</u>	<u>82.2</u>	<u>82.2</u>
	<u>#200</u>		<u>24.27</u>	<u>23.6</u>	<u>23.6</u>	<u>76.4</u>	<u>76.4</u>

Finess Modules (FM) N/A (See ASTM C 136-83, Section 8.2)

## MATERIALS FINER THAN NO. 200 SIEVE BY WASHING

C=Percentage of Material Passing a 200 Sieve 76.4 %

D=Original Dry Weight of Sample 102.65 g

E=Dry Weight of Sample After Washing/Sieve 24.27 g

$$C = \frac{D-E}{D} \times 100$$

Remarks

WASH GRADING

SMALL FIELD

SAMPLE

ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS TRAINED AND USED CALIBRATED INSTRUMENTS

Checked By HL Benny

Date 1-26-90

9212110744

# HYDROMETER ANALYSIS DATA SHEET

Sample ID 0-016

Page 1 of 1

Tested By R.G. ALEXANDER Date 4-16-90  
 Procedure ETAL-07 Rev 1 Date Issued 11-15-89

EQUIPMENT ITEM	NO.	CALIBRATION DUE DATE
Hydrometer	<u>1000</u>	<u>2-16-91</u>
Balance	<u>8304</u>	<u>6-25-90</u>
Thermometer/Thermocouple	<u>0002</u>	<u>2-9-91</u>

Specific gravity of Sample 2.30

% Passing No. 10 Sieve 100 (%)

Hygroscopic Correction Factor N/A

## WEIGHT OF SAMPLE

Wt. Container + Soil N/A (g)

Wt. Container N/A (g)

Wt. Soil 86.61 (g)

## COMPOSITE CORRECTION

1st Reading 5 at 25.7 °C

2nd Reading \_\_\_\_\_ at \_\_\_\_\_ °C

## HYGROSCOPIC MOISTURE CONTENT

Wt. Container + Air Dry Soil 154.95 (g)

Wt. Container + Oven Dry Soil 136.22 (g)

Wt. Container 93.52 (g) #78

Water Content 42.69 (%)

## REMARKS

TUBE B

W = 86.61

Assume  $\alpha = 1.1$   $K = 0.01447$

Date	Clock time	Elapsed time (min)	Hydrometer reading	Hydrometer with composite correction	Temp. (°C)	Soil in suspension (%)	Particle diameter (mm)
4-16	0825	2.0	22	17	26.6	21.8	.038
4-16	0828 <sup>26</sup> 0830	5.0	18	13	26.6	16.7	.024
4-16	0838	15.0	11	4	25.8	7.7	.015
4-16	0853	30.0	8	3	25.8	3.8	.011
4-16	0923	60.0	7	2	26.1	2.4	.008
4-16	1238	250.00	6	1	26.0	1.3	.004
4-17	0823	1,440.0	6	1	21.7	1.3	.002

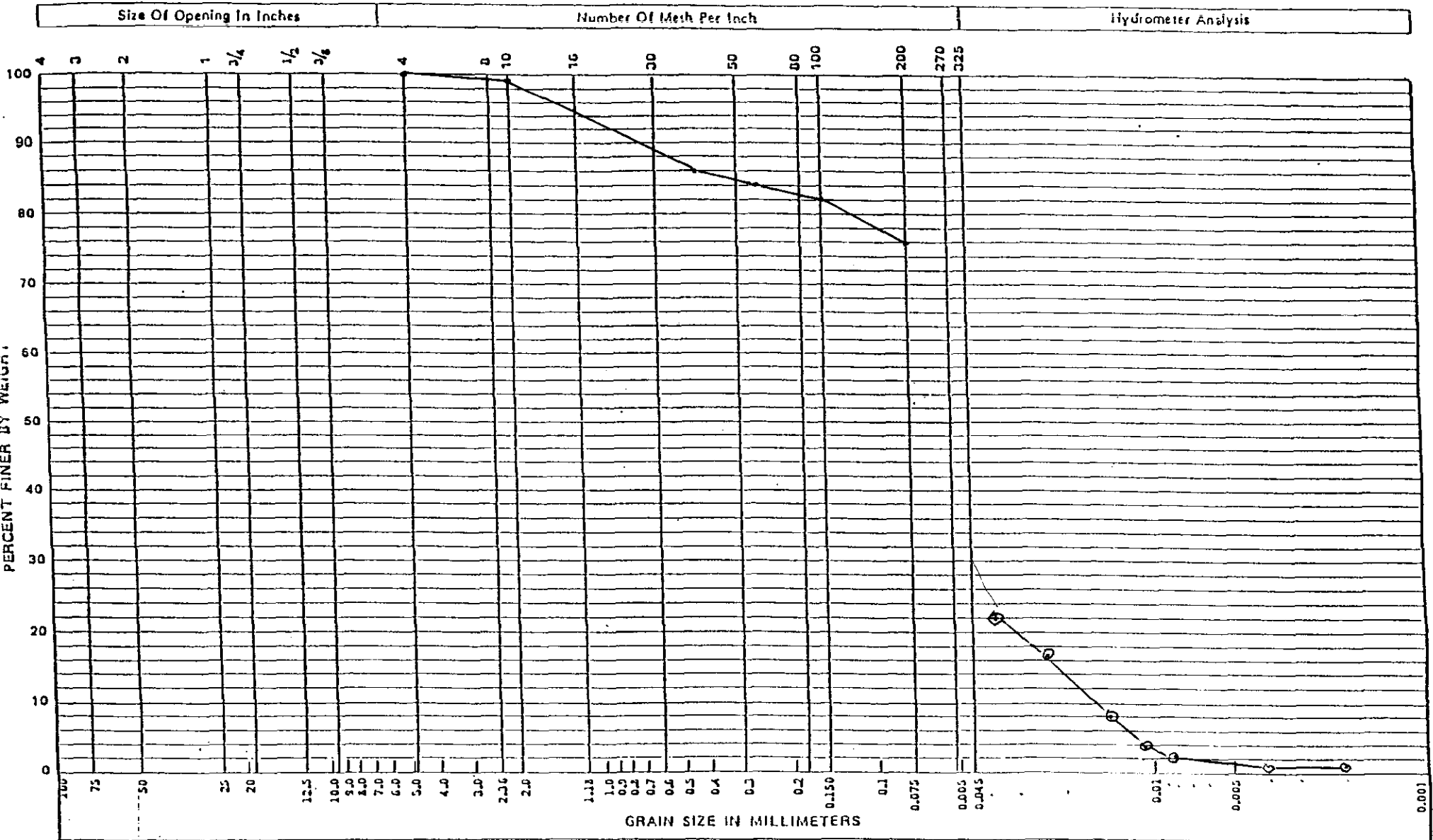
Formulas and Tables used to calculate percent Soil in suspension, particle diameter and hygroscopic correction factor are found in ASTM D422.

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND UTILIZED CALIBRATED TEST INSTRUMENTS AS INDICATED ABOVE. APPROVED TEST PROCEDURES WERE FOLLOWED TO PRODUCE THE ABOVE DATA.

Checked By Zal B. Angerman Date 4/17/90

9 2 1 2 1 0 7 4 6

## GRAIN SIZE ANALYSIS PLOT

Specimen No. 0-016Procedure No. ETAL-07Rev. 1Date Issued 11-15-89

Sample Description: SILTY SAND  
MW-14-9

Plotted by: R.G. ALEXANDERDate: 1-23-90Checked by: HL BennyDate: 1-26-90L. H. Benny4/12/90

SOIL MOISTURE DATA SHEET	
PROCEDURE NO. <u>ETAL-14</u>	REV. NO. <u>0</u>
THERMOMETER NO. <u>0006</u>	CALIBRATION DUE DATE <u>2-6-90</u>

REV. NO.           

CALIBRATION DUE DATE 2-6-90

[illegible]

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

DATE 1-23-90

# PLASTIC INDEX SOILS DATA SHEET

Sample No. 0-016

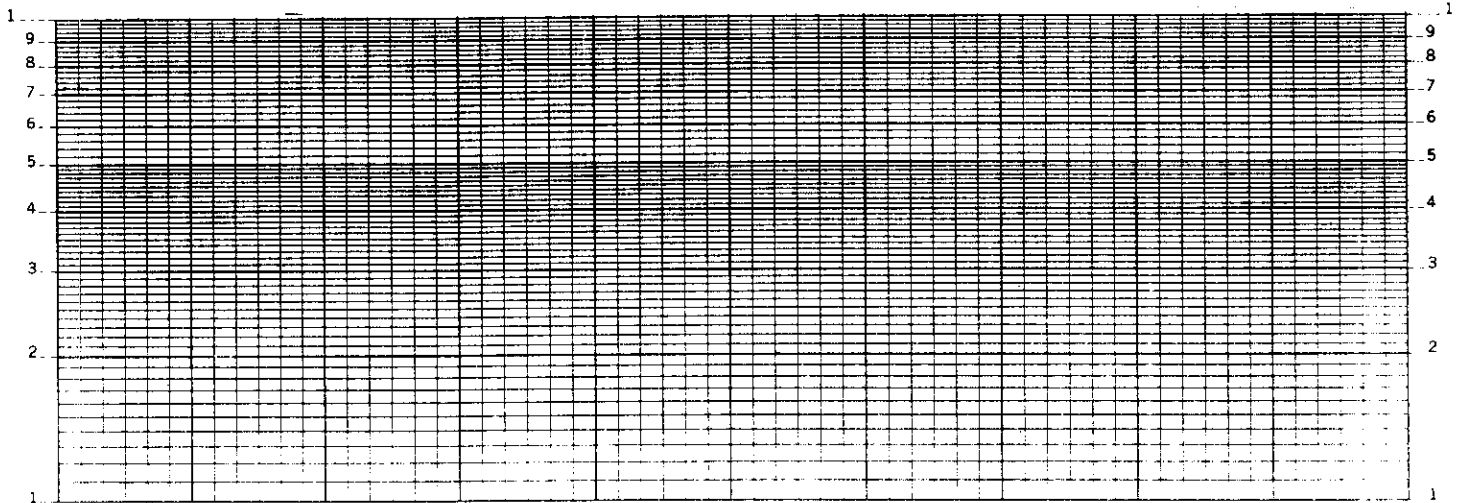
Page 1 of 2

Test Operator HL Benny

Date 4/9/90

Thermometer No. 0007

Calibration Date 8/16/90



## WATER CONTENT (Wn)

Liquid Limit (LL) \_\_\_\_\_ Graph

Plastic Limit (PL) NA (Avg.)

Liquid Limit (LL) \_\_\_\_\_ One Point

Moisture (PL) NA % NA %

Moisture (LL) \_\_\_\_\_ %

Plastic Index (PI)\* NA

$$*PI = LL - PL$$

Remarks Non-plastic (Volcanic Ash)

ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. LDB 4/16/90  
THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND UTILIZED  
CALIBRATED TEST INSTRUMENTS. APPROVED TEST PROCEDURES WERE  
FOLLOWED TO PRODUCE THIS DATA.

*Sample is not cohesive. Liquid limit can't be performed*

SOIL MOISTURE DATA SHEET	
PROCEDURE NO. <u>ETAL-018</u>	REV. NO. <u>0</u>
THERMOMETER NO. <u>0007</u>	CALIBRATION DUE DATE <u>8/16/90</u>

REV. NO. 0

CALIBRATION DUE DATE 8/16/90

//

[illegible]

103 A 1690  
ALL REQUI

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

TEST OPERATOR: Hc Benny

DATE 4/10/90

9212 ) 749



Westinghouse  
Hanford Company

CHAIN OF CUSTODY

Company Contact: JW Lindberg Telephone 6-5005

Sample Collected by: Rand Miller (Golder) Date: Jan 2-4, 1990 Time: NA

Sample Locations: Temporary Well Number MW-14

Ice Chest No.: NA Field Logbook & Page No. WHC-N306-3, Page 33-35

Remarks: \_\_\_\_\_

Bill of Lading No.: NA Off Site Property No.: NA

Method of Shipment: Hand Carry

Shipped to: Jerry Alexander (WHC) 2101-M physical testing laboratory

Sample Identification

<u>MW-14-3</u>	_____
<u>MW-14-4 above ▽</u>	_____
<u>MW-14-5 below ▽</u>	_____
<u>MW-14-6</u>	_____
<u>MW-14-7</u>	_____
<u>MW-14-8</u>	_____
<u>MW-14-9</u>	_____
<u>MW-14-10</u>	_____
<u>MW-14-11</u>	_____
_____	_____
_____	_____
_____	_____

CHAIN OF POSSESSION

Relinquished by: Rand Miller (GAI)

Received by: JW Lindberg

Date/Time: 1/6/90 1015

Relinquished by: JW Lindberg

Received by: R.G. ALEXANDER

Date/Time: 1/9/90 -1450

Relinquished by: \_\_\_\_\_

Received by: \_\_\_\_\_

Date/Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_

Received by: \_\_\_\_\_

Date/Time: \_\_\_\_\_

9212110750

# SAMPLING ANALYSIS REQUEST

## Part I: Field Section

Collector Rand Miller Date Sampled Jan 4, 1990 Time NA hours

Affiliation of Sampler Golder

Address NA  
number street city state zip

Telephone (309) 376-5005 Company Contact JW Lindberg (Field Team Leader)

LABORATORY  
SAMPLE  
NUMBER

COLLECTOR'S  
SAMPLE NO.

TYPE OF  
SAMPLE\*

FIELD INFORMATION\*\*

	<u>MW-14-9</u>	<u>Soil</u>	<u>Stainless Steel Liner (4" dia)</u>
	<u>MW-14-10</u>	<u>Soil</u>	<u>" " " "</u>
	<u>MW-14-11</u>	<u>Soil</u>	<u>" " " "</u>
			<u>"</u>

Analysis Requested MW-14-9 and MW-14-10 Particle size analysis and  
Atterberg Limits, MW-14-11 Permeability (after Klute & Dirksen)

Special Handling and/or Storage NA

## PART II: LABORATORY SECTION\*\*

Received by \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

Analysis Required \_\_\_\_\_

\* Indicate whether sample is soil, sludge, etc.

\*\*Use back of page for additional information relative to sample location.

Figure 9-19. Example of hazardous waste sample analysis sheet.

# RADIATION RELEASE

Bldg. How Reports Date 12-29-89  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-1  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. How Reports Date 12-29-89  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-2  
MW-15-2  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-14-3 Date 1-2-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-3  
1 Sample  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-14-4 Date 1-2-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks 1 Sample  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-14-5 Date 1-3-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks [Blank]  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-14-6 Date 1-3-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-5  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-14-7 Date 1-4-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks [Blank]

# RADIATION RELEASE

Bldg. MW-14-8 Date 1-4-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks [Blank]

# RADIATION RELEASE

Bldg. MW-14 Date 1/4/89  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-9

# RADIATION RELEASE

Bldg. MW-14 Date 1/4/89  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-10

# RADIATION RELEASE

Bldg. MW-14 Date 1/4/89  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-11

54-3000-022 (09/88)

54-3000-022 (09/88)

921210752

# TEST REQUEST FORM

Sample/Specimen No. 0-017 Cost Code/Work Order No. ED 332

Requested By: Org. 80232 Person J. LINDBERG Date 1-23-90

Test Requested	No. of Samples	Test Lab Information (Instruction Used)
<u>SIEVE ANALYSIS</u>	<u>1</u>	<u>ETAL-07</u>
<u>HYDROMETER</u>	<u>1</u>	<u>ETAL-07 (IF REQ.)</u>
<u>ATTERBERG LIMITS</u>	<u>1</u>	<u>ETAL-18</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Remarks FIELD SAMPLE  
MW-14-10

Received By: R.G. ALEXANDER Date 1-23-90

Approved By: R.G. ALEXANDER Date 1-23-90

9212110753

# SIEVE ANALYSIS DATA SHEET

Sample ID 0-017

Page 1 of 1

Tested By R. G. ALEXANDER

Date 1-23-90

Procedure ETAL-07

Rev 1

Date Issued 11-15-89

EQUIPMENT ITEM

CALIBRATION NO.

DATE DUE

Balance

3304

3-25-90

Thermometer

0006

2-6-90

N/A

N/A

N/A

Sample Description SILTY SAND

Sieve Time 10 (min)

reduced by ☒ splitting

☐ quartering

☐ stockpile

(B) BEFORE TEST WT. N/A (A) AFTER TEST WT. N/A  $\frac{B-A}{B} \times 100 = \underline{N/A} \% \text{ LOSS}$

Sieve ID Number	Sieve Size	Sample Weight	Cumulative Wt. Retained (g)	% Retained	Cumulative % Retained	Cumulative % Pass	% Pass
<u>N/A</u>							
	#4	116.97	0	0	0	100	100
	#10		0.69	0.6	0.6	99.4	99.4
	#40		7.23	6.2	6.2	93.8	93.8
	#60		9.66	8.3	8.3	91.7	91.7
	#100		11.75	10.0	10.0	90.0	90.0
	#200		15.00	12.8	12.8	87.2	87.2

Finess Modules (FM) N/A (See ASTM C 136-83, Section 8.2)

## MATERIALS FINER THAN NO. 200 SIEVE BY WASHING

C=Percentage of Material Passing a 200 Sieve 87.2 %

D=Original Dry Weight of Sample 116.97 g

E=Dry Weight of Sample After Washing/Sieve 15.00 g

$$C = \frac{(D-E)}{D} \times 100$$

Remarks

WASH GRADING  
SMALL FIELD  
SAMPLE

ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS TRAINED AND USED CALIBRATED INSTRUMENTS

Checked By H. C. Benny

Date 1-26-90

9212110754

# HYDROMETER ANALYSIS DATA SHEET

Sample ID 0-017

Page 1 of 1

Tested By R.G. ALEXANDER Date 4-16-90  
 Procedure ETAL-07 Rev 1 Date Issued 11-15-89

EQUIPMENT ITEM	NO.	CALIBRATION DUE DATE
Hydrometer	<u>1000</u>	<u>2-16-91</u>
Balance	<u>3304</u>	<u>6-25-90</u>
Thermometer/Thermocouple	<u>0002</u>	<u>2-9-91</u>

Specific gravity of Sample 2.30

% Passing No. 10 Sieve 100 (%)

Hygroscopic Correction Factor N/A

## WEIGHT OF SAMPLE

Wt. Container + Soil N/A (g)

Wt. Container N/A (g)

Wt. Soil 88.28 (g)

## COMPOSITE CORRECTION

1st Reading 5 at 25.7 °C

2nd Reading \_\_\_\_\_ at \_\_\_\_\_ °C

## HYGROSCOPIC MOISTURE CONTENT

Wt. Container + Air Dry Soil 176.14 (g)

Wt. Container + Oven Dry Soil 152.61 (g)

Wt. Container 93.78 (g) #18

Water Content 41.44 (%)

## REMARKS

TUBE D

W = 88.28

ASSUME  $\alpha = 1.1$   $K = 0.01447$

Date	Clock time	Elapsed time (min)	Hydrometer reading	Hydrometer with composite correction	Temp. (°C)	Soil in suspension (%)	Particle diameter (mm)
4-16	0837	2.0	42	37	26.5	46.5	.033
4-16	0840	5.0	25	20	26.3	25.2	.023
4-16	0850	15.0	14	9	26.3	11.3	.014
4-16	0905	30.0	10	5	26.0	4.3	.010
4-16	0935	60.0	8	3	25.8	3.8	.007
4-16	1245	250.00	7	2	25.6	2.5	.004
4-17	0835	1,440.0	7	2	21.5	2.5	.002

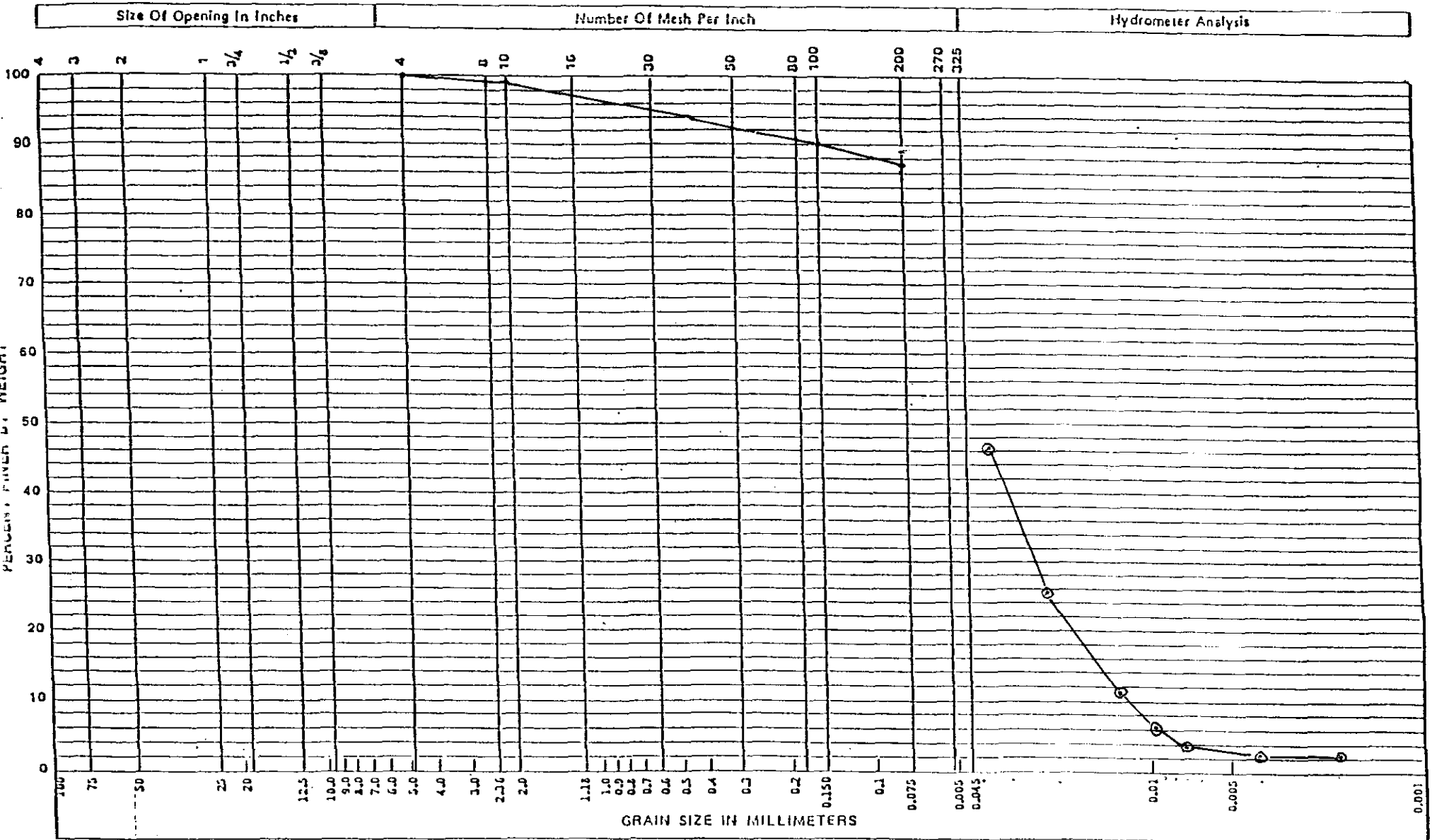
Formulas and Tables used to calculate percent Soil in suspension, particle diameter and hygroscopic correction factor are found in ASTM D422.

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND UTILIZED CALIBRATED TEST INSTRUMENTS AS INDICATED ABOVE. APPROVED TEST PROCEDURES WERE FOLLOWED TO PRODUCE THE ABOVE DATA.

Checked By L.R. Braggins Date 4/17/90

9 2 1 2 1 1 0 7 5 6

## GRAIN SIZE ANALYSIS PLOT

Specimen No. 0-017Procedure No. ETAL-07Rev. 1Date Issued 11-15-89

Sample Description:

SILTY SAND  
MW-14-10

Plotted by:

R.G. ALEXANDER

Date:

1-23-90

Checked by:

HL BennyL.B. Benny

Date:

1-26-904/17/90

PROCEDURE NO. ETAL-14 REV. NO. Ø

CALIBRATION DUE DATE 2-6-90

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

DATE 1-23-90

92120757

# PLASTIC INDEX SOILS DATA SHEET

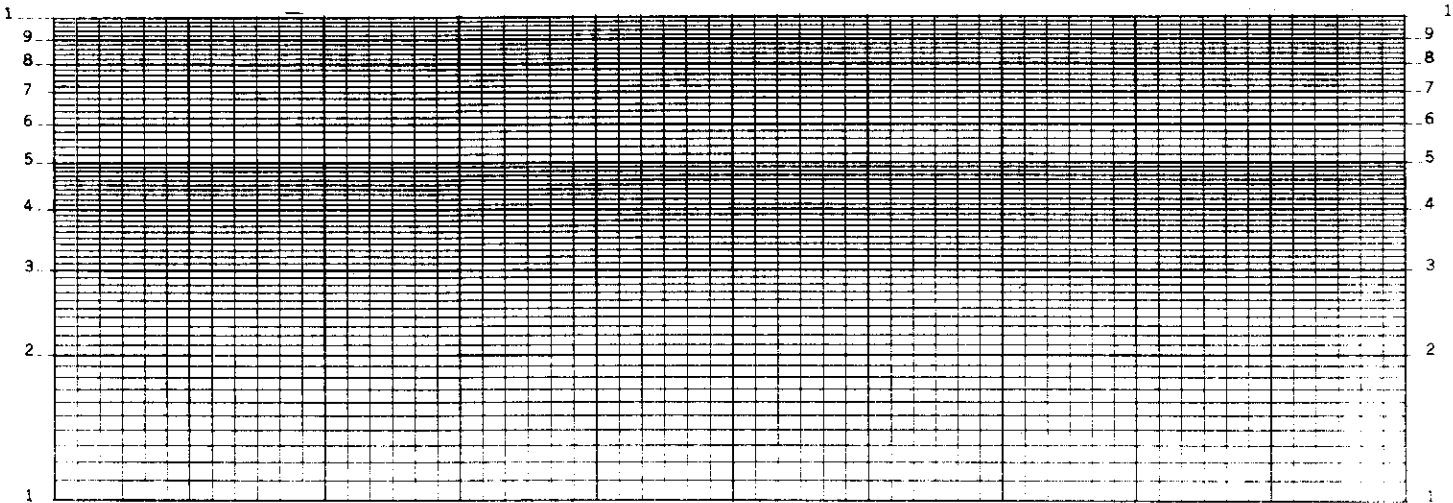
Sample No. 0-017

Page 1 of 2

Test Operator HL Benny

Date 4/10/90

Thermometer No. 0007 Calibration Date 8/16/90



## WATER CONTENT (Wn)

Liquid Limit (LL) NA Graph

Plastic Limit (PL) NA (Avg.)

Liquid Limit (LL) NA One Point

Moisture (PL) NA % NA %

Moisture (LL) NA %

Plastic Index (PI)\* NA

$$*PI = LL - PL$$

Remarks Non-plastic (Volcanic Ash)

ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. LAB 4/16/90  
THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND UTILIZED  
CALIBRATED TEST INSTRUMENTS. APPROVED TEST PROCEDURES WERE  
FOLLOWED TO PRODUCE THIS DATA.

*Sample is not cohesive. Liquid limit can't be performed.*

CALIBRATION DUE DATE 8/16/90

10

DATE 4/9/20

92121759



# SAMPLING ANALYSIS REQUEST

## Part I: Field Section

Collector Rand Miller Date Sampled Jan 4, 1990 Time NA hours

Affiliation of Sampler Golder

Address NA  
number street city state zip

Telephone (309) 374-5005 Company Contact JW Lindberg (Field Team Leader)

LABORATORY  
SAMPLE  
NUMBER

COLLECTOR'S  
SAMPLE NO.

TYPE OF  
SAMPLE\*

FIELD INFORMATION\*\*

	<u>MW-14-9</u>	<u>Soil</u>	<u>Stainless Steel Liner (4" dia)</u>
	<u>MW-14-10</u>	<u>Soil</u>	<u>" " " "</u>
	<u>MW-14-11</u>	<u>Soil</u>	<u>" " " "</u>
			<u>"</u>

Analysis Requested MW-14-9 and MW-14-10 Particle size analysis and  
Atterberg Limits, MW-14-11 Permeability (after Klute & Dirksen)

Special Handling and/or Storage NA

## PART II: LABORATORY SECTION\*\*

Received by \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

Analysis Required \_\_\_\_\_

\* Indicate whether sample is soil, sludge, etc.

\*\*Use back of page for additional information relative to sample location.

Figure 9-19. Example of hazardous waste sample analysis sheet.

# RADIATION RELEASE

Bldg. How Rapids Date 12-29-89  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-1  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. How Rapids Date 12-29-89  
 Released By [Signature]  
 Operational Health Physics  
 Remarks 14-2  
MW 15-2  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-14-3 Date 1-2-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-3  
1 sample  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-14-4 Date 1-2-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks 1 sample  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-14-5 Date 1-3-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks [Signature]  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-14-6 Date 1-3-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-5  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-14-7 Date 1-4-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks [Signature]

# RADIATION RELEASE

Bldg. MW-14-8 Date 1-4-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks [Signature]

# RADIATION RELEASE

Bldg. MW-14 Date 1/4/89  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-9

# RADIATION RELEASE

Bldg. MW-14 Date 1/4/89  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-10

# RADIATION RELEASE

Bldg. MW-14 Date 1/4/89  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-11

54-3000-022 (09/88)

54-3000-022 (09/88)

9212110762

# TEST REQUEST FORM

Sample/Specimen No. 0-018 Cost Code/Work Order No. ED 332

Requested By: Org. 80232 Person J. LINDBERG Date 1-23-90

Test Requested	No. of Samples	Test Lab Information (Instruction Used)
<u>HYDRAULIC CONDUCTIVITY</u>	<u>1</u>	<u>ETAL-09</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Remarks FIELD SAMPLE  
MW 14-11

Received By: R.G. ALEXANDER Date 1-9-90

Approved By: R.G. ALEXANDER Date 1-23-90

9212110763

# HYDRAULIC CONDUCTIVITY OF SOILS DATA SHEET

Sample No. 0-018

Page 1 of 5

Test Operator R.G. ALEXANDER

Date 1-23-90

## EQUIPMENT ITEM

## NO.

## DATE DUE

Balance	<u>3304</u>	<u>3-25-90</u>
Oven Thermometer	<u>0066</u>	<u>2-6-90</u>
Thermometer	<u>N/A</u>	<u>N/A</u>
Thermocouple		
Temperature Controller		
Pressure Gauge		
Pressure Transducer		
Pressure Transducer		
Back Pressure Gauge		
Pressure Transducer		
Pressure Transducer		
Calipers	<u>5623</u>	<u>8-16-90</u>
Load Frame	<u>N/A</u>	<u>N/A</u>
Data Logger		
<u>N/A</u>		
<u>N/A</u>		
<u>N/A</u>		

☐ Immediate (User) Calibration Performed. (Documentation To Be Attached)

## Sample Preparation

### PARTICLE SIZE (Sieve Mesh Range)

<u>N/A</u>	To	<u>N/A</u>
	To	
	To	
	To	
	To	
	To	
	To	

### OTHER COMPONENTS

<u>N/A</u>

### WEIGHT

<u>N/A</u>	%
	%
	%
	%
	%
	%
	%
Total	100 %

<u>N/A</u>	%
	%
	%
Total	100 %

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND UTILIZED CALIBRATED TEST INSTRUMENTS AS INDICATED ABOVE. APPROVED TEST PROCEDURES WERE FOLLOWED TO PRODUCE THE ABOVE DATA.

Checked By HL Benny

Date 2/2/90

## SAMPLE PREPARATION

Determine Weight of Samples in Container

Container No.	48
Wt. of Sample + Container, g	496.89
Wt. of Container, g	123.10
Wt. of Sample, g	373.79

Determine the Water Content of the "Air Dry" Sample

Container No.	48
Wt. Container & Wet Soil (A), g	496.89
Wt. Container & Dry Soil (B), g	380.34
Wt. of Water, g	116.55
Wt. of Container (C), g	123.10
Wt. of Dry Soil, W <sub>s</sub> , g	257.24
Water Content (W), %	45.31

$$W = \left( \frac{A - B}{B - C} \right) 100$$

SAMPLE COMPONENT	SPECIFIC GRAVITY, G	LABORATORY NOTEBOOK DATA LOCATION
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND UTILIZED CALIBRATED TEST INSTRUMENTS AS INDICATED ABOVE. APPROVED TEST PROCEDURES WERE FOLLOWED TO PRODUCE THE ABOVE DATA.

Checked By HL BennyDate 2/2/90

## SAMPLE COMPACTION

Compaction Method    Static N/A    Tamping N/A

<div>STATIC</div> <div>or</div> <div>TAMPING</div>	Load Applied, g/ Layer length, cm  No. Tamps per Layer/ Layer Length, cm	Layer 1	<u>N/A</u>	11	<u>N/A</u>
		2		12	
		3		13	
		4		14	
		5		15	
		6		16	
		7		17	
		8		18	
		9		19	
		10	↓	20	↓

Total No. of Layers N/A

INTACT SAMPLE FROM SPLIT  
TUBE IN STEEL LINER

Tamper Foot Diameter, cm	<u>N/A</u>
Tamper Applied Load, g	<u>N/A</u>
Sample Diameter, (d), cm	<u>9.80</u>
Sample Length, (L), cm	<u>15.22</u>
Sample Mold or Permeameter Weight & Compacted Sample, g	<u>2503.79</u>
Sample Mold or Permeameter Weight, g	<u>594.50</u>
Weight of Compacted Sample, (E), g	<u>1909.29</u>
Weight of Container & Uncompacted Wet Sample, (A), g	<u>496.89</u>
Weight of Container & Uncompacted Dry Sample, (B), g	<u>380.34</u>
Weight of Water, g	<u>116.55</u>
Weight of Container, (C), g	<u>123.10</u>
Weight of Dry Soil, (WS), g	<u>257.24</u>
Water Content, %	<u>45.21</u>
Compacted Bulk Density of Sample, ( $\gamma_m$ ), g/cc	<u>1.66</u>
Compacted Sample Dry Density, ( $\gamma_d$ ), g/cc	<u>1.15</u>

$$\gamma_m = \frac{E}{(\pi) (d/2)^2 (L)}$$

$$\gamma_d = \left( \frac{\gamma_m}{W + 100} \right) 100$$

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND UTILIZED CALIBRATED TEST INSTRUMENTS AS INDICATED ABOVE. APPROVED TEST PROCEDURES WERE FOLLOWED TO PRODUCE THE ABOVE DATA.

Checked By HL BennyDate 2/2/90

## HYDRAULIC CONDUCTIVITY DATA SHEET

Sample ID. 0-018Page 4 of 512-1-89 RGA 1-31-90Procedure No. ETAL-09Date Issued 11-15-89

DATE Year <u>90</u> (Mo/Day)	TIME			VOLUME DETERMINANTS							Operator Initials
	System Down (Hr: Min)	System Up (Hr: Min)	Time Change (Hr: Min)	Effluent Temp (°C)	Weight (±0.1g)	Container Tare (±0.1g)	Tare & Ef- fluent(±0.1g)	System Temp (°C)	Pressure Pore H <sub>2</sub> O (psi) <u>CM</u>	Back H <sub>2</sub> O (psi)	
1-23	—	11:45	—	—	—	150.46	—	—	191.0	N/A	RGA
1-23	14:15	STOP	2:30	22	496.05	150.46	646.51	22	191.0	N/A	RGA
1-24	—	0800	—	—	—	150.46	—	—	191.0	N/A	RGA
1-24	1045	1050	<del>2:45</del> <u>2:30</u>	22	535.94	150.46	686.40	22	191.0	N/A	RGA
1-24	1350	1355	3:00	22	545.17	150.46	695.63	22	191.0	N/A	RGA
1-24	1625	STOP	2:30	22	473.60	150.46	624.06	22	191.0	N/A	RGA
1-25	—	0710	—	—	—	150.46	—	—	191.0	N/A	RGA
1-25	0940	STOP	2:30	21	481.00	150.46	631.46	21	191.0	N/A	RGA
1-29	—	0805	—	—	—	150.46	—	—	191.0	N/A	RGA
1-29	10:05	10:10	2:00	22	385.63	150.46	536.09	22	191.0	N/A	RGA
1-29	13:10	13:35	3:00	22	560.21	150.46	710.67	22	191.0	N/A	RGA
1-29	15:35	STOP	2:00	22	384.84	150.46	535.30	22	191.0	N/A	RGA
1-30	—	12:50	—	—	—	150.46	—	—	191.0	N/A	RGA
1-30	15:30	STOP	2:40	22	486.72	150.46	637.18	22	191.0	N/A	RGA
1-31	—	0810	—	—	—	150.46	—	—	191.0	N/A	RGA
1-31	1010	1015	2:00	21	356.78	150.46	507.24	21	191.0	N/A	RGA
1-31	1315	1320	3:00	22	543.66	150.46	694.12	22	191.0	N/A	RGA
1-31	1520	STOP	2:00	22	377.14	150.46	527.60	22	191.0	N/A	RGA
—	—	STOP	TEST	—	—	—	—	—	—	—	—

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND UTILIZED CALIBRATED TEST INSTRUMENTS AS INDICATED ABOVE. APPROVED TEST PROCEDURES WERE FOLLOWED TO PRODUCE THE ABOVE DATA.

Checked By HL BennyDate 2/2/90

# HYDRAULIC CONDUCTIVITY DATA SHEET

Sample ID 0-018

Page 5 of 5

Procedure No. ETAL-09

Date Issued 11-15-89 12-1-89  
RGA 1-2-90

Date Year <u>90</u> (Mo/Day)	Hydraulic Conductivity (cm/sec)	Hydraulic Gradient (cm/cm)	Effluent Analysis		Effluent Description	Operator Initials
			(Sample Number)	Lab. Notebook Location		
1-23	START	TEST	—	—	—	RGA
1-23	$5.82 \times 10^{-5}$	12.55	—	—	CLEAR	RGA
1-24	START	TEST	—	—	CLEAR	RGA
1-24	$5.72 \times 10^{-5}$	12.55	—	—	CLEAR	RGA
1-24	$5.33 \times 10^{-5}$	12.55	—	—	CLEAR	RGA
1-24	$5.56 \times 10^{-5}$	12.55	—	—	CLEAR	RGA
1-25	START	TEST	—	—	—	RGA
1-25	$5.69 \times 10^{-5}$	12.55	—	—	CLEAR	RGA
1-29	START	TEST	—	—	—	RGA
1-29	$5.70 \times 10^{-5}$	12.55	—	—	CLEAR	RGA
1-29	$5.48 \times 10^{-5}$	12.55	—	—	CLEAR	RGA
1-29	$5.65 \times 10^{-5}$	12.55	—	—	CLEAR	RGA
1-30	START	TEST	—	—	CLEAR	RGA
1-30	$5.36 \times 10^{-5}$	12.55	—	—	CLEAR	RGA
1-31	START	TEST	—	—	CLEAR	RGA
1-31	$5.24 \times 10^{-5}$	12.55	—	—	CLEAR	RGA
1-31	$5.32 \times 10^{-5}$	12.55	—	—	CLEAR	RGA
1-31	$5.53 \times 10^{-5}$	12.55	—	—	CLEAR	RGA
STOP	TEST	$5.4 \pm 0.2 \times 10^{-5}$ cm/sec	—	—	—	—

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND UTILIZED CALIBRATED TEST INSTRUMENTS AS INDICATED ABOVE. APPROVED TEST PROCEDURES WERE FOLLOWED TO PRODUCE THE ABOVE DATA.

Checked By HL Benny

Date 2/2/90



# SAMPLING ANALYSIS REQUEST

## Part I: Field Section

Collector Rand Miller Date Sampled Jan 4, 1990 Time NA hours

Affiliation of Sampler Golder

Address NA number street city state zip

Telephone (309) 376-5005 Company Contact JW Lindberg (Field Team Leader)

LABORATORY  
SAMPLE  
NUMBER

COLLECTOR'S  
SAMPLE NO.

TYPE OF  
SAMPLE\*

FIELD INFORMATION\*\*

	<u>MW-14-9</u>	<u>Soil</u>	<u>Stainless Steel Liner (4" dia)</u>
	<u>MW-14-10</u>	<u>Soil</u>	<u>" " " "</u>
	<u>MW-14-11</u>	<u>Soil</u>	<u>" " " "</u>
			<u>"</u>

Analysis Requested MW-14-9 and MW-14-10 Particle size analysis and  
Atterberg Limits, MW-14-11 Permeability (after Klute & Dirksen)

Special Handling and/or Storage NA

## PART II: LABORATORY SECTION\*\*

Received by \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

Analysis Required \_\_\_\_\_

\* Indicate whether sample is soil, sludge, etc.

\*\*Use back of page for additional information relative to sample location.

Figure 9-19. Example of hazardous waste sample analysis sheet.

9212110770

# RADIATION RELEASE

Bldg. How Reports Date 12-29-89  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-1  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. How Reports Date 12-29-89  
 Released By [Signature]  
 Operational Health Physics  
 Remarks 14-2  
MW 13-2  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-14-3 Date 1-2-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-3  
1 sample  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-14-3 Date 1-2-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks 1 sample  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-14-5 Date 1-3-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks [Signature]  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-14-5 Date 1-3-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-5  
 54-3000-022 (09/88)

# RADIATION RELEASE

Bldg. MW-14-7 Date 1-4-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks [Signature]

# RADIATION RELEASE

Bldg. MW-14-8 Date 1-4-90  
 Released By [Signature]  
 Operational Health Physics  
 Remarks [Signature]

# RADIATION RELEASE

Bldg. MW-14 Date 1/4/89  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-9

# RADIATION RELEASE

Bldg. MW-14 Date 1/4/89  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-10

# RADIATION RELEASE

Bldg. MW-14 Date 1/4/89  
 Released By [Signature]  
 Operational Health Physics  
 Remarks MW-14-11  
 54-3000-022 (09/88)

54-3000-022 (09/88)

54-3000-022 (09/88)

9212110771